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The Massachusetts Medical Society

SOME FUNCTIONAL TESTS AND THEIR SIGNIFICANCE*†

BY EVARTS A. GRAHAM, M.D., F.A.C.S.‡

THE development of rational medicine may be divided, with some allowances, into three periods, (1) that of the study of normal anatomy, (2) that of the study of abnormal anatomy, or of pathology, together with its sister science of bacteriology, and (3) that of the study of functions of organs and tissues, the science of physiology. It may not be without reason to state that we are now in the third period of development, that of physiology.

It is unnecessary to acknowledge the enormous debt which we owe to the sciences of anatomy and pathology in enabling us to tell from clinical signs and symptoms not only what organs are affected but also, to a great extent, what the effects upon those organs have been. But the fact is perhaps not so generally recognized that symptoms are after all only dependent upon disturbed functions. An organ, the seat of disturbed function, may reveal anatomic changes or it may not. Again an organ may show anatomic changes but yet not produce symptoms. The brain may show at autopsy a tumor, an inflammation or a hemorrhage, anatomic evidence which we have learned to associate with the symptoms which may have preceded death; but how often, on the contrary, is the anatomic evidence of disorder lacking in the brains of those who have been inmates of our institutions for the insane? What anatomic changes in the brain are there to enable us to distinguish between intellectual mediocrity and superiority? In the case of the eye, also, is there not often the symptom of headache arising from a functional disturbance without an appreciable anatomic change in the eye itself? On the other hand, there are numerous examples in which definite pathologic changes are evident in an organ without the presence of symptoms. I might mention, for example, healed fractures of bones, healed valvular endocarditis, etc.

To the clinician, therefore, it is a matter of increasing importance to devote attention to methods of studying impaired function if he desires to be able to recognize early and mild disturbances. Severe disturbances, sufficient to be recognizable by anatomic changes, are often very late effects, and their presence often indicates neglect. Improvements in diagnosis, for the most part, must inevitably come from methods which will enable us to recognize functional disturbances before marked anatomic changes have occurred. The ophthalmologist, by means of his precise methods for studying errors of refraction, can already accomplish this desired object to a great extent. To the surgeon satisfactory methods of studying functional capacities of various organs are important not only in their relation to the diagnosis of the principal lesion but also in their relation to the question of operative risk. Death, after all, is the result of disturbed function.

With these remarks as an introduction I have felt that it might be interesting to discuss with you some of the studies of functional disturbances and the methods for their recognition which have been in progress recently in the department of surgery of the Washington University School of Medicine. I should like to discuss with you first the question of the gall bladder, more particularly the question of cholecystography as a functional test of this organ.

CHOLECYSTOGRAPHY AS A FUNCTIONAL TEST OF THE GALL BLADDER

The present state of knowledge probably does not permit us to name all of the functions of the gall bladder, but we know with certainty that it concentrates its contained bile by the absorption of water, and that during digestion it pours out this concentrated bile through the cystic and common ducts into the duodenum. In addition there is some evidence that it is concerned in some manner with the metabolism of cholesterol. The two functions of the gall bladder which we know with certainty, namely its concentrating power and its ability to empty, can be studied by means of cholecystography. May I at this point pay tribute to two former residents of Massachusetts, Lester R. Whitaker and Edward A. Boyden, who by applying cholecystography to the study of the functions of the gall bladder have added much to our knowledge? Either tetraiodophenolphthalein or phenoltetraiodo-

*Shattuck Lecture delivered before the Massachusetts Medical Society, June 5, 1928.

†From the Department of Surgery, Washington University School of Medicine and Barnes Hospital, St. Louis.

‡For record and address of author see "This Week's Issue," page 45.

phthalein, in the dose recommended, is not usually in sufficient concentration in the hepatic bile to be visualized with the X-ray. It is necessary, therefore, that greater concentration of the substance should occur. This concentration is accomplished in a normal gall bladder by the absorption of water, and it is for that reason that the densest shadows ordinarily are obtained in those cases in which the gall bladder is functioning normally. Conversely, a failure of visualization, theoretically, could indicate any of the following possibilities: An impairment of the excretory power of the liver sufficient to prevent enough excretion of the substance to permit a necessary quantity to get into the bile; a blocking of the cystic duct of such a degree that bile containing the substance can not enter the gall bladder; and finally an impaired ability on the part of the gall bladder to concentrate its contents. Practical experience indicates that in nearly all instances (about 90 per cent.) a failure of visualization is due to an impaired function of concentration by the gall bladder, if the intravenous technique has been carefully carried out. It seems important to emphasize the fact that cholecystography is fundamentally a functional test and only incidentally an indication of anatomic changes because many writers on this subject have lost sight of this fact. Some speak of a failure of visualization of the gall bladder as a "filling defect", and the procedure has sometimes been condemned because at operation no blocking of the cystic duct could be demonstrated.

We feel that cholecystography is more valuable in diagnosis because it is a functional test than it would be if it merely revealed anatomic changes. In evaluating its usefulness many authors have drawn conclusions which have been based on fallacies. It would seem proper perhaps at this time to call attention to some of these fallacies.

One type of fallacy is that cholecystography is an automatic "nickel-in-the-slot" procedure. One puts some of the dye into a vein or into the mouth, takes a series of films, and presto! there is the diagnosis all but labelled for him on the film, like the pink ticket of the fortune telling machine! A corollary of this same idea is that all radiologists are equally expert in the interpretation of the films. Of course there is no truth in either of these notions. It should be emphasized, however, that cholecystography, like other laboratory methods of examination, should be used in conjunction with other methods of examining a patient, that it is not an automatic procedure and that intelligence and skill are as necessary in the interpretation of results with it as with any other method of arriving at a diagnosis.

Another fallacy is that symptoms from an organ are entirely dependent upon gross pathologic lesions, when as a matter of fact, of course, symptoms are always due to functional disturbances, which, however, are indeed usually traced to some demonstrable pathologic evidence. This fallacy leads to conclusions which condemn the value of cholecystography because, on the one hand, a gall bladder diagnosed as having normal functions by cholecystography may show at operation perhaps a few old adhesions representing some healed process, and, on the other hand, a gall bladder may appear normal at operation in spite of a complete failure of concentrating function. If the gall bladder is functioning properly it is doubtful if it is causing symptoms at the same time, although the possibility that it may have caused symptoms in the past or will cause symptoms in the future cannot be excluded. On the other hand, one that is not functioning may cause symptoms despite an absence of any marked gross pathologic changes.

A third fallacy is concerned with the acceptance of the findings of pathologists who are not experienced in the interpretation of lesions of the gall bladder. Several articles have been published stating that the cholecystograms showed a normal concentrating power despite the fact that the excised gall bladder revealed a complete absence of the mucosa. Complete absence of the mucosa of the gall bladder from disease, however, is an extremely rare condition which occurs only in complete gangrene. In this respect our ideas harmonize with those of Boyd[1] who states that "it is remarkable how intact the epithelium may be in the worst looking gall bladders". The *apparent* frequency of the absence of the mucosa is, however, due to poor technique in the examination. Post mortem decomposition is very rapid in this organ, and usually within a few hours after removal the mucosa will disappear unless the specimen has been "fixed". The finding of an absence of a mucous membrane is usually due to the fact that after the operation the gall bladder has been allowed to remain for several hours without fixation", and has therefore become "cadaverized before being submitted to microscopic examination", to use an expression of W. J. Mayo. Another explanation of an apparent absence of the mucosa is that if a small block of tissue is cut out of the gall bladder before "fixation" the mucosa retracts, and, unless great care is exercised, the subsequent microscopic sections will not reveal any mucous membrane.

Still another fallacy is based on the idea that a gall bladder to be diseased must present the classical symptoms and signs which can be unequivocally recognized by the clinician. Thus, for example, Eusterman[2] of the Mayo Clinic, in a recent article in which he emphasizes the limitations of cholecystography states that "the clinical history and physical examination, including the elimination of the stomach and duodenum as the site of disease by roentgen-ray examination, enables the experienced clinician to make a diagnosis of definite cholecystic disease in more than 90 per cent. of the cases".

Mentzer[3], also, in reporting studies made on material at the Mayo Clinic, states that "clinicians accurately identify a diseased gall bladder in about 85 per cent. of the cases". Strangely enough, however, in another paragraph he states, "Of 1647 consecutive patients examined at necropsy, 37 per cent. had cholesterosis of the gall bladder. Gall stones accompanied the lesion in 20 per cent. of the cases. *Gall bladder disease was not anticipated in most of these patients, for in 87 per cent. of them the history of gastro-intestinal disease had been negative*". (Italics mine.) It would seem, therefore, that without the use of cholecystography even such excellent clinicians as those at the Mayo Clinic really fail to recognize a very large percentage of diseased gall bladders. The proportion of error must be greater in places where the clinical skill of the examining physician is not on the same high plane. It would seem that a more extensive use of cholecystography would greatly diminish the high percentage of error which now occurs without this aid. It is a simple matter to recognize by clinical methods those cases which present classical symptoms and signs, but of course our aim in diagnosis should be to increase our ability to recognize the less obvious and the early disturbances. I recall the same feeling of skepticism about the value of the X-ray examination of the stomach which existed during the early days of its development, a period when many clinicians felt that not only the presence but also even the location of a peptic ulcer could be accurately diagnosed from the history alone. How false we now know that opinion to have been! In passing, let us remind ourselves also that the X-ray examination of the gastro-intestinal tract with the barium meal also is largely a functional test. Certain disturbances in the motor functions, filling and emptying, which we now know how to evaluate when revealed by the X-ray, have for the most part been responsible for the revolutionary diagnostic effect of the barium meal.

However, our diagnostic problem with cholecystography is of course not finished merely by calling it a functional test of the gall bladder. It is still necessary to determine in a more satisfactory manner the correlation of functional disturbances, as revealed by cholecystography, with symptoms. For example, is a gall bladder whose power of concentration is seriously impaired capable of producing symptoms, even if at operation it shows no gross pathologic changes? Our opinion is that a gall bladder which fails to cast a shadow after a careful intravenous technique and which therefore has its concentrating function seriously impaired may be the cause of discomfort and of dyspeptic symptoms even if no marked pathologic changes are discernible in it with the naked eye, although in nearly every instance of non-visualization definite pathologic findings will be evident. I am excluding from consideration here those cases of non-visualization due to obvious and severe impairment of liver secretion, such as cirrhosis, marked hepatitis, edema of the liver, biliary obstruction, etc., in which the gall bladder, even if it produces a part of the symptoms, plays only a minor rôle in the whole condition. It is realized, of course, that there may be a certain danger in publicly expressing such an opinion since an obvious result might be an unnecessary removal of normal gall bladders. But this opinion is based on careful observation and follow-up of a number of patients in whom these conditions were present and whose gall bladders were removed. A series of 52 such patients, operated on in the Barnes Hospital, was studied and reported by Olch[4] in which although the cholecystographic evidence of abnormality was definite as shown by a complete absence of or a very faint visualization, nevertheless at operation the gall bladders showed only very slight or no definite evidence of disease on gross examination. It is a striking fact that all of these patients, one year or more after operation, stated either in personal interviews or in letters that their symptoms were completely relieved. It is not expected of course that in a larger series the same proportion of 100 per cent. of success will be maintained.* But these results seem to be in striking contrast to those which have usually been obtained after operation on the non-calculous gall bladder in cases in which cholecystography has not been employed in the diagnosis. For example, Müller[5] states that only 70 per cent. of his non-calculous group were "clinically cured", and he quotes Whipple as finding that only 76.6 per cent. of his similar cases were relieved of their symptoms. Judd[6], also, found that in the group of cases which presented the least pathologic evidence of disease, good results were accomplished in only 64 per cent. I cannot help feeling that the important factor in the difference between our results and those of others in the results obtained after cholecystectomy in cases of noncalculous gall bladder is the use of cholecystography. Certainly the use of this method will help very greatly to incriminate the gall bladder as the source of symptoms in doubtful cases.

It is unnecessary to state that one of the reasons for the failure of cholecystectomy to relieve the patient's symptoms is that often other possibilities of the source of symptoms have not been sufficiently considered. Among these are particularly spastic constipation or mucous colitis, osteo-arthritis of the spine, chronic appendicitis, peptic ulcer, residual hepatitis, etc. We have repeatedly had the experience of having patients present rather typical clinical histories of chole-

*To avoid criticism, I should have preferred to have the results in this series of 52 cases slightly different, since any series in which the results are reported as 100 per cent. good is likely to be questioned. In this case, however, in the interest of truth, it is necessary to state that all of the patients regarded themselves as relieved of their symptoms by operation. Perhaps of great importance, in addition to the diagnostic value of cholecystography in this series, was the fact that it is our custom to remove the appendix also in cases of cholecystectomy

cystitis whose symptoms were, however, due to some one of the conditions named. In many instances the normal cholecystographic findings have prevented us from wrongly operating on the gall bladder and have stimulated us to find the true explanation of the patient's symptoms elsewhere by other methods of examination. In two instances, for example, we have discovered that the patient's symptoms were due to intestinal allergy from sensitiveness to wheat, although in each case a diagnosis of cholecystitis had been made without the use of cholecystography and in one case a cholecystostomy had been actually performed elsewhere. In one of these two cases cholecystography showed a normal gall bladder, and in the case that had been operated on the cholecystographic findings were sufficiently normal to lead us to exonerate the gall bladder. Dr. Harry Alexander and Dr. Eyermann found that in each case the withdrawal of wheat caused the symptoms to disappear and the ingestion of wheat again made them appear.

There is another side of the picture which is not so clear. This concerns the question of whether a gall bladder which appears normal on cholecystographic examination can produce symptoms of cholecystitis. Sufficient evidence on this point has not yet been accumulated. Kirklin[7], however, has stated that at the Mayo Clinic the diagnostic accuracy of normal cholecystographic findings has been only 69 per cent. as compared with an accuracy of over 93 per cent. for the cholecystographic diagnosis of an abnormal organ. Such an inference, however, is extremely difficult to draw and one which should be accepted with some reserve. In the first place, Kirklin's results were obtained with cholecystography by the oral method which we feel to be distinctly less accurate than the intravenous method. Also, the number of cases on which he has based his conclusion is not stated. Perhaps a larger number would show a greater percentage of accuracy. Finally also it is uncertain from his published report what his criteria of error were. Bearing in mind the fact that cholecystography is chiefly a functional test it becomes apparent that what we are really interested in knowing is whether or not a gall bladder diagnosed as normal is really causing symptoms. The finding at operation, therefore, of minor pathologic changes, such as adhesions, cholesterosis, etc., does not necessarily indicate that at the time the function of the gall bladder is sufficiently impaired to be productive of symptoms. Presumably we shall have to be guided rather by whether the relief of symptoms has been accomplished by the removal of such gall bladders than by the finding of pathologic changes which perhaps in some instances are merely the evidence of healing of some former active condition.

Our own results at the Barnes Hospital show somewhat higher percentages of accuracy than those reported by Kirklin at the Mayo Clinic based presumably on the same criteria. We have examined 2,289 patients by cholecystography. Of this number 264 patients who had been diagnosed by this means as having pathologic gallbladders had cholecystectomies performed on them, and their gall bladders were examined microscopically. Of these, 254 showed definite pathologic evidence of disease, a percentage of diagnostic accuracy, therefore, of 96, as judged by anatomic findings. More striking, however, is the comparison of our results in the cases diagnosed as normal. Opportunities for a gross examination of the gall bladder during the course of a laparotomy for other conditions have been presented in 69 cases in which the cholecystographic diagnosis was normal. Of this number, in 61 cases the organ was regarded as unqualifiedly normal at operation, but in two cases the gall bladder would be 98.5, based on the criterion definitely pathologic and was removed. Microscopic examination corroborated the surgeon's diagnosis in both cases. In six other instances there was some doubt expressed by the surgeon as to whether it was normal or not, but it was not removed. On the basis of these 69 cases, therefore, even if we admit an error in diagnosis in the six doubtful cases, the percentage of accuracy was 88, as compared with Kirklin's 69. If we should exclude the six doubtful cases and admit only the two certain errors, our percentage of accuracy of diagnosis of the normal gallbladder would be 98.5, based on the criterion of a gross examination at operation.

Many of the points on cholecystography briefly discussed here are more amply treated in our book[8].

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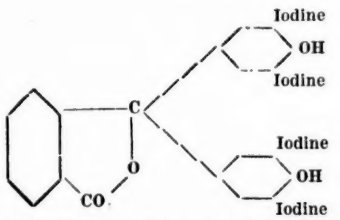
SIGNIFICANCE OF TESTS OF EXCRETORY FUNCTION OF LIVER

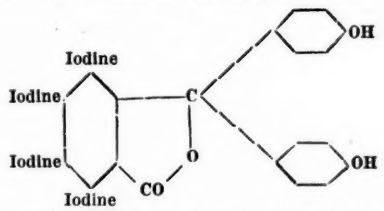
Every since Abel and Rowntree[1] first studied the excretion of various phthaleins through the liver, the use of dyes of various kinds has been extensively studied for the purpose of obtaining some method by which hepatic function could be conveniently examined. Rosenthal's[2] modification greatly simplified the clinical applicability of such tests. Apparently, however, the enthusiasm for this method of studying the liver has been rapidly diminishing lately because the results obtained seemed to be of but little diag-

nostic value. After all of course the study of the passage of dyes through the liver is really only a study of the excretory function of the organ with reference to those particular dyes; and in a structure like the liver which has very many functions it seemed futile to many to devote attention to a study of excretion only.

It so happened, however, that one of the many substances which we used for cholecystography was phenoltetraiodophthalein, an isomer of tetraiodophenolphthalein and a substance which has the halogen atoms arranged in a proper manner to permit staining of the serum when it is slightly alkalinized. In using any of the phenolphthalein derivatives for study of the excretory function of the liver, it is necessary to employ those in which the halogen atoms are arranged according to the second of the following two formulas, since it is only this group which stains the serum sufficiently to afford recognition of small quantities of the dye. This substance was therefore one which not only induced visualization of the gall bladder but also permitted studies of the excretory function of the liver.



Structural formula of tetraiodophenolphthalein.



Structural formula of phenoltetraiodophthalein.

It has seemed to us that perhaps one of the reasons why the determination of the excretory function of the liver with dyes has in the past been somewhat unsatisfactory as a diagnostic procedure has been that the doses ordinarily employed have been too small. It goes without saying that in any kind of a test of function, whether of a machine or of an organ, enough work must be put on the object to be tested to determine what its capabilities are. Injections of minute quantities of a dye can therefore hardly be expected to give the liver a sufficient amount of work to perform really to test its capabilities of excretion. With these considerations before us, it appeared reasonable to expect that perhaps with much larger doses much more information could be obtained than would be the case otherwise. It happens that the dose of phenoltetraiodophthalein which we found most suitable for cholecystography (0.04 Gm. per kilogram of body weight) was at least eight times that recommended for most of the dyes used for functional hepatic tests (0.005 Gm. of phenoltetrachlorphthalein were suggested by Rosenthal). Our results have borne out to a great extent our theoretical considerations. We believe that they show that the use of a functional excretory test with a sufficiently large dose of dye will prove of very distinct value not only in the differentiation between malignant and inflammatory obstructive jaundice but also in gauging the operative risk in a patient with disease of the biliary tract. It happens, therefore, that the possibility of using the same substance for the simultaneous purposes of cholecystography, and determination of hepatic excretory function is very fortunate. This substance*, phenoltetraiodophthalein, is the one which we have used almost exclusively for the past two years. Greene, McVicar, Walters and Rowntree[3] also previously had concluded that the use of phenoltetrachlorphthalein may be very helpful in the diagnosis of carcinoma of the liver.

Several facts of considerable importance have been shown by our study of the excretion of phenoltetraiodophthalein. We found that normally about 12 per cent. of the dye is still present in the serum a half hour after injection and that 5 per cent. is present at the end of an hour. About 90 per cent. of all patients having cholecystitis even without jaundice, who were examined in our series, showed a retention of dye above normal. The average retention in this group was 27 per cent. a half hour after injection, or more than twice the normal. These observations have been especially interesting to us because they tend to confirm from a different point of view ideas which were developed in this clinic in several papers[4] a few years ago, namely, that in cases of cholecystitis there is more or less constant hepatitis. Walton Martin[5] has recently criticized these ideas.

To the surgeon, however, the fact of probably the greatest importance brought out by the study of retention of the dye in the serum pertains to its usefulness as a means of estimating the operative risk for a patient. Three patients of the series studied by the liver function test died following operation. Incidentally two of these three patients happened to be the only ones who in over a year's time died following operations on the biliary tract. The third death occured after a gastro-enterostomy for duodenal ulcer. One of the patients was jaundiced from a stone in the common duct and had a retention of 70 per cent. of the dye in a half hour. The other two, however, were not jaundiced and, except for their high retentions of dye, 90 and 75 per cent. respectively, seemed to be in excellent condition for operation. At the time of these observations we were not aware of the full significance of these findings, and therefore we proceeded with the operations. But because of

*This substance is manufactured by the Mallinckrodt Chemical Works under the name of ISO-IODEIKON.

these tragedies we have learned to beware of operating on patients with retentions above 40 per cent. in the half hour.

Another striking finding in the studies on the excretion of the dye was the fact that patients with obstructive jaundice from malignant disease show very much less retention than those whose jaundice is due to stone in the common duct or to the condition of so-called "catarrhal icterus". Our average value in 11 cases of jaundice from cancerous obstruction was only 26 per cent. in the half hour, about double the normal, whereas in the inflammatory obstructions, including those with stone in the common duct, the amount of retention was five or six times the normal values. In one case of so-called "catarrhal icterus" as much as 90 per cent. of the dye was found to be retained in the serum at the end of a half hour, and 70 per cent. at the end of an hour (14 times the normal average). It is apparent, therefore, that the study of the excretion of the dye by the liver becomes an important aid in differentiating between an obstructive jaundice caused by a carcinoma and that caused by a stone in the common duct or by the condition of hepatitis often called "acute catarrhal icterus". I know of no satisfactory explanation as yet of the curious fact that even in a complete obstruction of the common duct from a carcinoma there is but little retention of the dye in the serum. Ordinarily more than 95 per cent. of it is excreted in the bile and thus passes into the intestine. One wonders what has happened to it when, in spite of a complete obstruction of the common duct, only 10 or 12 per cent. of it is found to be still present in the blood serum at the end of an hour. Some passes out in the urine, and perhaps the rest is rapidly changed in the body into either its unrecognizable isomeric form, tetraiodophenolphthalein, or is destroyed.

I shall not discuss here the technique of performing this examination. These details, together with a more ample discussion of the value of the procedure, will be found in our book and also in a recent article[6].

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DIAGNOSTIC VALUE OF FUNCTIONAL STUDIES OF THE PANCREAS

Another interesting functional study has been that carried out by Dr. Elman and Dr. McCaughan with reference to the pancreas. It is unnecessary to review here the many attempts which have been made to find a satisfactory procedure which would enable one to diagnose disease of that part of the pancreas which is not included in the islands of Langerhans. As is well known, they have been both cumbersome and unsatisfactory. It occurred to Dr. Elman to investigate the quantity of amylase, the starch splitting ferment of the pancreas, in the blood in a variety of conditions but particularly in cases of pancreatic disease. He chose to study amylase rather than other ferments because of its ease of detection. In order to measure it he used the simple method of mixing definite amounts of plasma with a standard starch solution and noting the time required for the solution to pass through a viscosimeter. A larger amount of amylase in the preparation obviously would reduce the viscosity of the solution more than a smaller amount would, and thus the fluid would pass more quickly through the viscosimeter. After adopting arbitrary units of measurement, he found that the amount of amylase in the blood of normal individuals varied between 4 and 6 units. In cases of outspoken pancreatic disease, however, the amount of amylase in the blood is greatly increased. In one case of pancreatic cyst, for example, it was as high as 50 units (about ten times the normal) and in another case it was 15 units. In each case an operation was performed which confirmed the functional diagnosis, and the cyst was marsupialized. Within a few weeks the amylase content in the blood had returned to normal. Also, in two cases of acute pancreatitis, the amylase readings were very high; and in one case it was this determination which was the crucial factor in making the diagnosis. In the few cases of carcinoma of the pancreas which he has had an opportunity to study, the blood amylase has been lower than normal, presumably because in these particular cases so much of the acinar tissue of the organ had been destroyed by the carcinoma that it was no longer capable of manufacturing the normal amount of amylase. In diabetes there has been no change from the normal, an expected finding. This procedure is still in process of more extensive development. We have, however, learned to place great reliance on it as a diagnostic method. Its importance and value will doubtless soon become generally recognized. The test is fairly simple, and it can be run quickly, points decidedly in its favor. For the details the two publications of Dr. Robert Elman[1] on the subject may be consulted.

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REGURGITATION OF PANCREATIC JUICE INTO THE STOMACH AND ITS SIGNIFICANCE

Boldyreff[1] some years ago showed that under normal conditions regurgitation of duodenal contents into the stomach occurs, and that when a moderate amount (200 cc.) of 0.5 per cent. hydrochloric acid (which is the concentration at which the acid is normally secreted) is placed in the stomach the acidity decreases as the fluid leaves the stomach. He considered that the reduction of acidity is due very largely to neutralization accomplished by an inflow into the stomach of the strongly alkaline pancreatic juice. Elman, in our laboratory, recently has found that in dogs with external pancreatic fistulae, arranged in such a manner that all of the pancreatic juice flows outside the body, the gastric acidity remains much higher than it does normally. Evidence has also been found by other workers that regurgitation of duodenal contents occurs into the stomach normally. Olch[2], of our department, has recently made clinical use of this fact in an interesting way. If the fact is true, as it seems to be, that the alkaline pancreatic juice is an important factor in the regulation of gastric acidity, then it would not be surprising that conditions which block the pylorus would be associated with relatively high gastric acidity provided that there was no interference with the normal secretion of acid in the stomach. In the case of a peptic ulcer situated near the pylorus, therefore, it would not be surprising to find a relatively high gastric acidity if it interfered with duodenal reflux whether by scar, spasm, edema, or in any other way. It is highly interesting and important that in no case of supposed hyperchlorhydria in association with ulcer has he found the concentration of hydrochloric acid to exceed the 0.5 per cent. which is known to be the normal concentration. It would seem, therefore, that, in many cases at least, the existence of a supposed hyperchlorhydria is really due to a failure of neutralization of the normal concentration of acid by the pancreatic juice. One might even doubt if there is any such condition as hyperchlorhydria in the sense of the secretion of HCl into the stomach in concentration above normal.

In the many different methods of clinical gastric analysis the phenomenon of neutralization by regurgitation of duodenal contents seems not to have been taken into consideration. As a result of Olch's studies however, we have now adopted as a method of studying the stomach the time required to neutralize 200 cc. of 0.5 per cent. HCl introduced into the stomach. This is a new "test meal" which with us has practically supplanted older and less informative test meals. At intervals of every ten minutes samples are withdrawn and titrated to note the speed of neutralization. After all, probably what interests us most in cases of ulcer, in so far as gastric analysis is concerned, is whether or not there is the normal amount of opportunity for the pancreatic juice to get back into the stomach to neutralize the gastric acid. We have used the procedure also extensively to study cases postoperatively after the performance of gastroenterostomies, gastric resections, etc. If the neutralization occurs promptly, within 20 minutes, we feel certain that there will be no further trouble caused at least by the gastric acidity. If, on the other hand, neutralization is slow, we are afraid that there may be more trouble. We have not yet been using the procedure for a sufficiently long period of time to realize its prognostic value with reference to the permanency of the "cure" of the ulcer. It would seem, however, that if we know the acid is being properly controlled in the normal way we might expect that in the majority of cases the ulcer would heal. Of course one cannot say what prognostic value it might have with reference to the possible occurrence of jejunal ulcers later. For the details of using the procedure reference should be made to Olch's recently published article.

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THE FUNCTIONAL DIAGNOSTIC SIGNIFICANCE OF CHANGES OF PRESSURE IN THE URINARY BLADDER

I regret that limitations of time will prevent me from discussing in a satisfactory manner the important work of Dr. D. K. Rose in utilizing for diagnosis the measurement of intracystic pressures. I can mention it only briefly in concluding my remarks. Those who are interested in the details of the method and in the diagnostic results obtained may consult his published articles[1]. He has devised an ingenious instrument, called a cystometer, which both measures and records changes of volume and of pressure within the urinary bladder, by means of which he has been able with remarkable accuracy to differentiate between disturbances of the bladder of neurogenic and other origins. The information obtained has been much more decisive and spectacular than that obtained by ordinary cystoscopic or by the usual neurological examination. In two cases he diagnosed both the existence and the location of previously unsuspected spinal cord tumors which were later found at operation by Dr. Sachs.

In conclusion may I say that I hope, in order to fulfill the terms of the Shattuck bequest, that the functional tests described in this lecture will prove to be as useful to the inhabitants of the Commonwealth of Massachusetts as they have been to some of the inhabitants of the State of Missouri.

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The Massachusetts Medical Society

PROCEEDINGS OF THE SOCIETY

First Day, Tuesday, June 5, 1928

DURING the morning the Sections of Surgery and Pediatrics held their meetings in the rooms of the Hotel Bancroft, Worcester, according to the programs which were published in full in the official organ of the Society in the issue of May 24, 1928. At 11.30 o'clock the Supervising Censors met in the Ball Room, ten District Societies being represented. A committee was appointed to prepare papers for uniform use in the Censors' examinations in all of the eighteen Districts of the State. At twelve o'clock the Council met in the same room, the attendance being 119. (See Proceedings of the Council.*) From 1.45 to 2.15 o'clock, during an intermission in the Council meeting, a buffet luncheon was served to all Fellows who were in attendance. The Council adjourned at 4.13 p. m. The Section of Obstetrics and Gynecology met in the hall of the Chamber of Commerce and the Section of Tuberculosis in the hotel during the afternoon. In the evening the Shattuck Lecture was given in the Ball Room by Dr. Evarts A. Graham of St. Louis, with the subject: Some Functional Tests and Their Significance, the attendance being about 400. Following the lecture there was a vaudeville entertainment and refreshments were served.

Second Day, Wednesday, June 6, 1928

The morning of the second day was occupied by the meetings of the Section of Medicine in the hotel and by the Section of Radiology and Physiotherapy in the Chamber of Commerce hall. At 12.35 noon the President called to order the Annual Meeting of the Society. The minutes of the last meeting were read by the Secretary. There being no omissions or errors noted they were accepted as read.

The Secretary stated that on June 8, 1927, the total membership of the Society was 4365. During the year the Society had lost, by death 73; by resignation 17; by deprivation of the privileges of fellowship (under classes (a) and (b) 29, making a total loss of 119. During the year the Society had gained Fellows as follows: new Fellows 207; readmitted by the Censors 1; restored by the Council 13, making a total gain of 221, a net gain of 102, therefore the total membership on June 6, 1928, was 4467.

The President placed before the meeting the draft of the Revised By-Laws, a copy of which had been sent to every Fellow of the Society with the official program, and had received the approval of the Council the previous day. On motion from the floor, duly seconded, it was *Voted,* That the old By-Laws be, and they are hereby rescinded and that the Revised By-Laws, as approved by the Council, together with the two amendments to the Malpractice Act, as printed on the draft of the By-Laws, be adopted. The vote was unanimous, there being about 100 in the audience. Dr. Roland Hammond, of Providence, Rhode Island, was present as a delegate from the Rhode Island Medical Society. At one o'clock the Annual Discourse was delivered by Dr. Walter B. Cannon of Cambridge with the subject: The Mechanism of Emotional Disturbance of Bodily Functions, the attendance being about 150 persons. On motion by Dr. P. E. Truesdale it was *Voted,* That the Massachusetts Medical Society express its warm thanks to the Worcester District Medical Society and to the Worcester Chamber of Commerce for their wholehearted hospitality, for their splendid entertainment and efficient management of this meeting. On motion of Dr. T. J. O'Brien it was *Voted,* That the Massachusetts Medical Society respectfully petitions the Commissioner of Internal Revenue of the United States that he grant the request of the medical profession, to permit the deduction from the income tax of expenses incident to attending medical meetings.

The attendance at the Section meetings and the officers elected for the following year were as follows:

SECTION OF MEDICINE: *Chairman:* Dr. Lester C. Miller, Worcester; *Secretary:* Dr. Roger W. Schofield, Worcester. Attendance at the meeting: 193.

SECTION OF SURGERY: *Chairman:* Dr. Philemon E. Truesdale, Fall River; *Secretary:* Dr. L. S. McKittrick, Boston. Attendance: 275.

SECTION OF TUBERCULOSIS: *Chairman:* Dr. John B. Hawes, 2nd, Boston; *Secretary:* Dr. Walter A. Griffin, Sharon. Attendance: 100.

SECTION OF PEDIATRICS: *Chairman:* Dr. C. A. Sparrow, Worcester; *Secretary:* Dr. Joseph Garland, Boston. Attendance: 70.

SECTION OF OBSTETRICS AND GYNECOLOGY: *Chairman:* Dr. Frederick L. Good, Boston; *Secretary:* Dr. Louis E. Phaneuf, Boston. Attendance: 300.

SECTION OF RADIOLOGY AND PHYSIOTHERAPY: *Chairman:* Dr. William D. McFee, Haverhill; *Secretary:* Dr. P. F. Butler, Boston. Attendance: 125.

The annual dinner was served in the Ball Room of the hotel to about 200 Fellows and their guests. The President acted as toastmaster and introduced the following speakers: Hon. M. J. O'Hara, Mayor of Worcester; Dr. James Ewing, of New York City; Dr. E. H. Stevens, of Cambridge; Rev. V. E. Tomlinson, of Worcester, and Dr. F. D. Donoghue, of Boston. The annual meeting was adjourned at 5.15 p. m. The total registration was 675.

WALTER L. BURRAGE, *Secretary.*

*Vol. 198, No. 19, page 971.

ADMISSIONS RECORDED FROM JUNE 8, 1927, TO JUNE 6, 1928

Year of Admission	Residence	Medical College
1928	Appel, Bernard Hyman, Roxbury	11
1927	Baker, Norman Clyde, Boston	20
1928	Bartlett, Bernice Amabel, Haverhill	10
1927	Bennett, John Daniel, Somerville	12
1927	Black, Harry, Lowell	12
1928	Blais, Robert Ernest, Amesbury	10
1927	Bloomberg, Maxwell, Everett	12
1927	Blotner, Harry, Boston	12
1927	Blumgart, Hermann Ludwig, Boston	11
1928	*Bongiorno, Felice, Waltham	32
1928	Bradley, John Francis, Peabody	27
1928	Briggs, Harry Goddard, Kingston	12
1928	Brooke, Percy Albert, Worcester	11
1927	Burgiel, Julius John, Lawrence	12
1928	*Caldwell, Albert Francis, Jr., New Bedford	4
1928	*Caldwell, John Oatley, Sharon	27
1928	*Calicchio, David Julius, Boston	27
1927	Campbell, Alexander James Allen, Boston	12
1928	Canby, Joseph Edward, Great Barrington	20
1927	Canzanelli, Attilio, Medford	12
1928	Caron, Armand Laurier, Worcester	11
1927	Carrigan, Paul William, South Boston	12
1928	Carroll, John Henry, Boston	10
1927	Castle, William Bosworth, Boston	11
1927	*Castro, Antonio Madureira e., New Bedford	33
1928	Cattell, Richard Bartley, Jamaica Plain	11
1928	Celce, Frederick William, Holyoke	11
1928	Chandler, Paul Austin, Newton	11
1927	*Charron, Ovide Toussaint, New Bedford	2
1927	Chayet, Jacob, Boston	12
1928	Cohen, Harold Israel, Lynn	12
1927	Cook, Robert Louis, Quincy	11
1927	Coonse, George Kenneth, Boston	11
1927	Cotta, Germain John, Malden	12
1928	Coughlin, William Francis, Boston	12
1927	Courtiss, Morris, Boston	10
1927	Covitz, Edward Everett, Revere	12
1928	*Cregg, Aloysius James, Dorchester	27
1927	Culliton, Thomas Edward, Lynn	12
1928	Curtin, John Joseph, Waltham	11
1928	Dalton, George Dewey, Braintree	12
1927	Damsky, Charles, Lynn	27
1927	Davis, Allan Littlefield, Boston	11
1928	Davis, David, Dorchester	23
1928	Del Gratta, Alberto Joseph, Lynn	12
1927	DeRoma, Edward Ralph, Walpole	12
1927	D'Errico, Emilio, Boston	12
1928	*Dierkes, William Francis Xavier, Westfield	24
1927	Dillenback, Emil Uhlein, Springfield	10
1927	Dumas, James Arthur, Boston	12
1927	Eades, Marion Fletcher, Boston	11
1928	Edelman, Elsa Berger, Cambridge	19
1928	Eisenhardt, Louise Charlotte, Brookline	12
1928	Elkin, Samuel Nathaniel, Roxbury	12
1927	Elliott, John Joseph, Roslindale	5
1927	Farnham, Marynia Foot, Cambridge	6
1927	Faulkner, James Morison, Boston	11
1927	Faxon, Henry Hardwick, Boston	11
1928	Feingold, Ephraim McKinley, Worcester	28
1927	Fields, Russell Joseph, Plymouth	16
1927	Fine, Jacob, Nantucket	11
1927	Foisie, Philip Samuel, Milton	11
1927	Fong, Theodore Claremont Chen, Boston	12
1927	Friederman, Elie Louis, Roxbury	2
1928	Friedman, Susannah, Roxbury	12
1928	Gamble, James Lawder, Brookline	11
1927	Ganz, Robert Norton, Cambridge	11
1928	Gargill, Samuel Leo, Dorchester	12
1928	Gettings, James Henry, Boston	12
1928	Gilmore, Edward Bernard, Brockton	10
1928	Gilmore, Robert Owens, Brockton	10
1928	Glazer, Manuel Morris, Roxbury	12
1928	Glenn, Chester Lloyd, Quincy	10
1928	Gove, Wilfred Freeman, Wareham	10
1927	Greene, Earl Frederick, Ayer	12
1928	Guidone, Erel Linguiti, Charlemont	11
1927	Hadley, Rollin Van Nostrand, Westborough	3
1927	Hall, Llewellyn, Fall River	11
1928	Haskins, Abraham, Dorchester	12
1928	Haubrich, Bernard Page, Claremont, N. H.	10
1928	Hayman, Ralph Wilbur, Providence, R. I.	10
1928	Haysmer, Clyde Albert, Stoneham	7
1928	Henken, Joseph Charles, Everett	12
1928	Hicks, James Bryan, Brookline	15
1927	Higgins, Harold Leonard, Boston	15
1927	Horne, Herbert Quimby, Roxbury	17
1927	Hudson, Henry William, Jr., Boston	11
1927	Hull, Eunice Ruth, Framingham	8
1928	Hussey, Charles Bumpus, Franklin	22
1928	*Kagan, Solomon, Roxbury	31
1928	Kaplan, Joseph Herbert, Dorchester	12
1927	Kappius, Meinolf Valen, Springfield	11
1928	Kasanin, Jacob Isaakovich, Boston	3
1927	Kaszett, Peter William, Lowell	12
1927	Katzeff, Miriam Gertrude, Mattapan	10
1928	Kelley, Harry Norton, Worcester	11
1928	Kelley, John Bernard, Worcester	12
1928	Kendrick, Doris, Lexington	3
1928	Kotarski, Louis Alexander, Salem	27
1928	Kramer, Hyman Louis, Dorchester	11
1927	*Krantz, Michael, Boston	27
1927	*LaBelle, Urgele Alexander, Springfield	30
1928	Labinsky, Irving, Fall River	12
1928	Lakeman, Mary Ropes, Swampscott	10
1928	Lalor, Thomas Joseph, Jr., Millville	12
1927	Langevin, William Edward, Fall River	12
1927	Lapniewski, Chester Joseph, Lowell	12
1927	Leary, Frank Robert, Dedham	12
1927	Lee, Frank Robert, Lawrence	12
1928	Lennox, William Gordon, Newton	11
1927	Leonard, Edward Joseph, Dorchester	16
1927	Levine, Elijah Louis, Lynn	12
1927	Levy, Philip Earle, Milford	12
1927	Lewis, Edwin Ray, Fitchburg (readmitted by Censors)	10
1927	Lubinsky, Henry, Fall River	12
1927	Luther, Eliot Horton, Medford	11
1927	Lynch, Charles Edward, South Boston	12
1928	*Madsen, William Joseph, Bernardston	27
1927	Mahoney, Stephen Andrew, Jr., Holyoke	11
1927	Manton, Anstis Pearce Dyer, Roxbury	10
1928	Martin, John Sidney, Norwood	10
1928	Martin, William Richard, Watertown	12
1928	Matzek, Neil Clayton, Belmont	12
1927	McCarty, Raymond Anthony, Waltham	11
1927	McDonough, Eugene Francis, Lowell	12
1927	McGovern, Thomas James, South Braintree	12
1927	McGrath, Laurence Wilfred, Roxbury	12
1928	McKhann, Charles Fremont, Jr., Boston	9
1928	McKoan, John William, Jr., Worcester	11
1927	McLaughlin, Joseph Aloysius, Fall River	12
1928	McNally, Daniel Raymond, Providence, R. I.	10
1927	Miller, Erwin Curtis, Worcester	11
1928	Milliken, Grace, Boston	12
1928	Millman, Max, Springfield	10
1928	Mirabelle, Frank, South Boston	12
1927	*Morelli, Luigi Constantino, Boston	32
1928	Morgan, Roy, Westfield	13
1928	Moriarty, William Thomas, Malden	12
1928	Morse, Frank Leander, Somerville	11
1927	Moyle, Henry Brown, Worcester	29
1927	Murphy, George Raymond, East Boston	12
1927	Murphy, John Michael, Brockton	12
1927	Myers, Roscoe Wallace, Worcester	11
1927	Newman, Joseph Abraham, Dorchester	27
1927	Nunes, Joseph Enos, Jr., Springfield	12
1927	Oddy, John George, Lawrence	12

*Indicates that the candidate's diploma was approved by the Committee on Medical Education and Medical Diplomas.

1927	O'Reilly, Joseph Leo, Lawrence	12
1928	O'Sullivan, Patrick Anthony, Somerville	12
1927	O'Toole, Thomas Henry, Jr., Norwood	12
1928	*Packer, George William, Fall River	2
1928	Palmer, Anna Chipman, Milton	10
1927	*Parlow, George Gibson, Wareham	2
1928	Peirson, Edward Lawrence, Jr., Salem	11
1928	Pesce, Guy Charles, Watertown	12
1928	Phillips, Arthur Francis, Stoneham	12
1927	Pope, David William, Avon	12
1928	Rafferty, George Edward, Lynn	12
1927	Reed, Howard Clinton, Whitman	12
1927	Restall, Malcolm Morris, Swampscott	11
1927	Reynolds, George Phillips, Boston	11
1928	Rhymes, Lester Harold, Stoneham	7
1928	Richardson, Carl Eugene, Franklin	12
1928	Rose, David, Boston	12
1927	*Rosen, William, New Bedford	26
1928	*Rotman, Nelson, Dorchester	27
1927	Roy, Aurile, Brockton	30
1927	Russman, Benjamin, Roxbury	12
1927	Sala, Ralph della, Chelsea	12
1928	Santoro, William Manfred, Boston	14
1928	Savitz, Harry Austryn, Roxbury	11
1928	Scamman, Clarence Linwood, Newtonville	26
1928	Schwartz, Abraham Louis, Fall River	12
1928	Scigliano, Frank Pietro, Somerville	12
1927	Scribner, James Merle, Lowell	12
1927	Shaw, John Holbrook, Plymouth	11
1927	Sheehan, William Arthur, Brighton	10
1928	Shulman, Harold Isaac, Dorchester	12
1928	Slowick, Francis Arthur, Palmer	12
1928	Smithwick, Reginald Hammerick, Boston	11
1928	Spalding, Harry Osgood, Wellesley	10
1928	Speare, George Spyrounes, Boston	11
1927	Spellman, John William, Brighton	11
1927	Stearns, David Belford, Boston	10
1928	Stern, David, Boston	11
1928	Stevens, William Borden, Brookline	11
1927	Stobbs, William Malcolm, Attleboro	23
1927	Suchnicki, Emil Felix, South Boston	12
1928	Sutherland, John Preston, Boston	10
1928	Talty, Francis Eugene, Arlington	11
1928	Taylor, James Ralph, Jr., Boston	10
1928	Terry, Theodore Lasater, Brookline	18
1927	Tiede, Joseph W., Dedham	11
1927	Tierney, John Paul, Worcester	12
1928	Towle, George Pierce, Carlisle	12
1927	Upson, William Hart, Fitchburg	12
1928	Vance, Robert Glass, Jr., Cambridge	1
1927	Verdone, John, Medford	12
1928	*Walsh, John Francis, Peabody	27
1928	Waterman, Isidore Hyman, Fall River	12
1927	Weeks, Joshua Herbert, New Bedford	11
1928	Weintraub, Harry Jeroham, Malden	21
1928	Weiss, Peter Francis, Jamaica Plain	11
1927	Welch, Norman Alphonsus, West Roxbury	12
1928	Whitmarsh, Willard Francis, Bridgewater	11
1928	Windsberg, Eske Harry, Worcester	23
1928	*Worthy, William, Boston	2
1928	Wright, Allen Henry, Northfield	25
1927	Zonn, Seymour Israel, Boston	12

New Fellows, 207. Readmitted by Censors, 1.
Total, 208.

Key to Medical Colleges

1. University of Virginia Department of Medicine
2. College of Physicians and Surgeons, Boston
3. University of Michigan Medical School
4. University of Maryland, School of Medicine
5. Hahnemann Medical College and Hospital of Philadelphia
6. University of Minnesota Medical School
7. College of Medical Evangelists, California
8. University of Nebraska College of Medicine
9. University of Cincinnati, College of Medicine
10. Boston University School of Medicine
11. Harvard University Medical School
12. Tufts College Medical School
13. Western Reserve University School of Medicine, Cleveland
14. Fordham University School of Medicine, New York
15. Johns Hopkins University School of Medicine
16. Georgetown University School of Medicine
17. Columbia University College of Physicians and Surgeons
18. University of Texas School of Medicine
19. University of Pennsylvania School of Medicine
20. Jefferson Medical College of Philadelphia
21. St. Louis College of Physicians and Surgeons
22. University of Vermont College of Medicine
23. Cornell University Medical College
24. Kansas City University of Physcians and Surgeons
25. University of Maryland School of Medicine and the College of Physicians and Surgeons
26. Bowdoin Medical School
27. Middlesex College of Medicine and Surgery
28. Ohio State University College of Medicine
29. University of Toronto Faculty of Medicine
30. Laval University Faculty of Medicine, Quebec
31. University of Tartu (formerly, Dorpat), Esthonia
32. University of Naples, Italy
33. School of Medicine and Surgery, Lisbon, Portugal

Deaths Reported from June 8, 1927, to June 6, 1928

Admitted	Name	Place of Death	Date of Death	Age
1894	Abbott, Howard Edwin	North Reading	Feb. 14, 1928	69
1911	Battershall, Mary Hannah Wolfenden	Attleborough	May 4, 1928	73
1921	Bazin, Edmond Albert	Haverhill	Feb. 11, 1928	51
1883	†Best, Enoch George	Greenfield	July 4, 1927	76
1914	Bisbee, Ernest Sydney	Boston	Nov. 15, 1927	52
1919	Bridgwood, David	Moosehead Lake, Me.	May 13, 1928	33
1873	Brown, Orland Jonas	North Adams	Nov. 24, 1927	79
1898	Buffum, Herbert Edwin	Somerville	Aug. 25, 1927	55
1892	Carroll, John Aloysius	Boston	May 6, 1928	71
1895	Chamberlain, William Eugene	Rutland	Mar. 11, 1928	67
1901	†Clark, Ezra Warren	Brockton	May 1, 1928	85
1901	Clark, Frederick Timothy	Westfield	Aug. 16, 1927	53
1897	Clark, Mary Wilson	Medford	Dec. 18, 1923	56
1927	Clewley, William Hale	Woburn	Jan. 14, 1928	32
1883	†Cone, Dwight Eleazer	Swansea	Aug. 31, 1927	73
1876	†Cummings, Edwin Francis	Revere	May 5, 1928	77
1889	Donahue, Hugh	Haverhill	Apr. 24, 1928	63
1883	Drake, William Abram	North Weymouth	Aug. 22, 1927	77
1886	Duggan, John Thomas	Worcester	Sept. 5, 1927	72

1915	Eaton, Harold Burney	Boston	Jan. 18, 1928	41
1866	†Eddy, George Stetson	Little Compton, R. I.	Aug. 22, 1927	84
1867	†Edson, Ptolemy O'Meara	Roxbury	Feb. 13, 1928	94
1917	Ericson, Ester Matilda Eleanora Sundelöf	New York City	Dec. 21, 1927	32
1890	Finn, Edward William	Brookline	Dec. 1, 1927	59
1883	Foster, Horace Kendall	Peabody	Feb. 20, 1928	73
1896	Glendenning, Robert Thompson	Beverly	Sept. 3, 1927	62
1873	†Graham, Douglas	Brookline	Mar. 24, 1928	79
1923	Harney, Robert Edwin	Dorchester	Oct. 3, 1927	47
1887	Hatchett, William Josephus	Somerville	Mar. 7, 1928	72
1874	†Hebbard, Ellery Cola	Boston	Oct. 4, 1927	80
1882	Hewins, Parke Woodbury	Wellesley Hills	Feb. 4, 1928	72
1883	†Hoitt, Eugene Gorham	Seattle, Wash.	Apr. 12, 1928	78
1888	Hurley, Daniel Bartholomew	East Boston	May 5, 1928	62
1884	†Keith, Wallace Cushing	Brockton	June 19, 1927	68
1908	Kelly, John Michael	Dorchester	Apr. 7, 1928	49
1898	Kennedy, Alexander Gladstone	Boston	July 9, 1927	56
1922	Kraus, Dorris May Presson	Needham	June 22, 1927	38
1909	Littlewood, Thomas	Pittsfield	Sept. 13, 1927	46
1890	Lothrop, Howard Augustus	Cambridge	June 4, 1928	63
1913	Macdonald, John Bernard	Arlington	Sept. 6, 1927	53
1898	MacKnight, Adam Stephenson	Attleborough	Feb. 27, 1928	69
1898	Martin, Harry Charles	Longmeadow	Sept. 12, 1927	51
1875	†McClean, George Chesley	Springfield	June 29, 1927	76
1894	Mercer, William James	Pittsfield	May 27, 1928	56
1905	Merrill, Ayres Phillip	Pittsfield	May 2, 1928	51
1884	Nickerson, George Wheaton	Stoneham	Apr. 27, 1928	76
1902	Osborne, Caroline Amelia	Gardner	Sept. 17, 1927	61
1881	Otis, Walter Joseph	Chicago, Ill.	June 13, 1927	73
1867	†Paine, Amasa Elliot	Brockton	Sept. 30, 1927	83
1907	Peabody, Francis Weld	Cambridge	Oct. 13, 1927	45
1919	Peterson, Arthur Fredolf	Moosehead Lake, Me.	May 13, 1928	41
1892	Peterson, Charles Augustus Burton	New Bedford	Mar. 9, 1928	72
1908	Powell, Maud Agatha	Laconia, N. H.	Aug. 2, 1927	53
1886	†Qua, Lester Robert	Randolph, Vt.	Aug. 17, 1927	70
1869	†Quinby, Hosea Mason	Worcester	Aug. 14, 1927	87
1892	Redmond, James William	South Boston	July 7, 1927	60
1907	Redmond, Thomas Henry	Lawrence	Nov. 4, 1927	56
1900	Reilly, James Aloysius	Dorchester	Mar. 19, 1928	50
1901	Rockwell, Herbert George	Amherst	June 25, 1927	55
1902	Rollins, Edwin Theodore	Jamaica Plain	Mar. 30, 1928	60
1888	Sayles, Joseph Borland	Taunton	Feb. 21, 1928	62
1914	Shapiro, Victor Isaiah	Boston	Sept. 9, 1926	44
1876	Sheldon, Chauncey Coolidge	Lynn	Jan. 31, 1928	79
1914	Simmons, Edward Burnside	Worcester	Jan. 7, 1928	45
1874	†Stevens, George Beckwith	West Roxbury	Apr. 14, 1928	82
1896	†Stone, Moses Cornelius	Wellesley	May 19, 1928	86
1901	Sumner, Harry Herbert	Rutland	May 20, 1928	56
1891	Tenney, Benjamin	Boston	Jan. 18, 1928	64
1866	Warren, John Collins	Boston	Nov. 3, 1927	85
1893	White, Leon Edward	Brookline	May 18, 1928	60
1891	Whitten, George Edwin	Haverhill	Sept. 23, 1927	68
1891	Woodbury, William Richardson	Rochester, N. Y.	Sept. 30, 1927	64
1894	Wright, James Homer	Boston	Jan. 3, 1928	58

†=retired.

Total number of deaths, 73.

THE MASSACHUSETTS MEDICAL SOCIETY

Officers Elected by the Council, June 5, 1928

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C. E. Mongan, Somerville.	Gilman Osgood, Rockland.
J. F. Burnham, Lawrence.	W. C. Leary, Springfield.
R. I. Lee, Boston.	C. H. Lawrence, Boston.

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Lincoln Davis, Boston.
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Victor Safford, Jamaica Plain
F. E. O'Brien, Haydenville.

COUNCILORS, 1928-1929

ELECTED BY THE DISTRICT MEDICAL SOCIETIES AT THEIR ANNUAL MEETINGS, APRIL 15 TO MAY 15, 1928

NOTE:—The initials M. N. C. following the name of a Councilor indicate that he is a member of the Nominating Committee. V. P. indicates that a member is a Councilor by virtue of his office as President of a district society and so Vice-President of the general society. C. indicates that he is chairman of a standing committee, Sec. that he is secretary of his District Society.

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L. R. Bragg, Webster.

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G. E. Emery, Worcester.
M. F. Fallon, Worcester.
Homer Gage, Worcester.
J. J. Goodwin, Clinton.
R. W. Greene, Worcester.
David Harrower, Worcester, M. N. C.
E. L. Hunt, Worcester.
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A. W. Marsh, Worcester.
L. C. Miller, Worcester.
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C. E. Harris, Hyannis.
J. P. Nickerson, West Harwich.

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J. G. Adams, Great Barrington.
J. B. Thomes, Pittsfield.
N. H. Walker, Jr., Pittsfield.

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H. B. Baker, Taunton.
A. R. Crandell, Taunton.
T. F. Clark, Taunton.
T. J. Robinson, Taunton.

BRISTOL SOUTH

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W. F. MacKnight, Fall River.
F. M. Howes, New Bedford.
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J. D. Collins, Northampton.
O. W. Cobb, Easthampton.
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J. H. Kerrigan, Stoneham.
E. C. Fish, Melrose.
F. L. Smalley, Reading.
James Blenkhorn, Stoneham.

MIDDLESEX NORTH

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D. J. Ellison, Lowell.
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R. B. Rand, North Abington.
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R. W. Schofield, Worcester.
G. L. Chase, Clinton.

WORCESTER NORTH

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1928-1929

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The following letter has been received by the Society:

June 22, 1928.

Dr. Walter L. Burrage, Secretary
To The Massachusetts Medical Society,
182 Walnut Street,
Brookline, Massachusetts.

Sir:

Receipt is acknowledged of your letter of June 8, 1928, in reference to the question of whether members of the medical profession may deduct in computing their taxable incomes the expenditures incurred in attending conventions or meetings of medical associations. It is stated that The Massachusetts Medical Society at its annual meeting of June 6, 1928, passed the following resolution:

> "That the Massachusetts Medical Society respectfully petitions The Commissioner of Internal Revenue of the United States that he grant the request of the medical profession, to permit the reduction from the income tax of expenses incident to attending medical meetings."

You are advised that the Bureau has on several occasions carefully considered and reconsidered the question of whether expenses incurred by physicians or other professional and business men in attending conventions of voluntary professional or business associations may properly be deducted in computing their taxable income. The Bureau has uniformly concluded that such expenses are personal expenses, not ordinary and necessary business expenses. Accordingly, under the provisions of Section 24 of the Revenue Act of 1928 and Section 215 of the Revenue Act of 1926, such expenditures are not deductible in computing taxable income.

Respectfully,

C. B. ALLEN, *Deputy Commissioner.*

FRACTURES OF THE PELVIS*

BY JAMES WARREN SEVER, M.D., F.A.C.S.†

THIS paper is based on fifty-one cases of fractures of the pelvis. They are of different types, caused by all sorts of accidents, the automobile being the most frequent offender, and varying in degree and anatomical localization without any apparent regard to the actual causative agent or force.

Roughly, they have been divided into three groups as follows:

1.	Fractures of the ilium	12
2.	Fractures of the pubic arch	25
3.	Fractures involving the acetabulum	14
		51

I have made the classification simple, limiting it to the three subdivisions noted above.

Some authors have divided fractures of the pelvis into three large groups; namely,

1. Injuries to the Pelvic Ring
2. Isolated Fractures of the Pelvic Bones
3. Fractures of the Acetabulum

and have enumerated thereunder as many as ten types of fracture.

These various classifications are probably all justified in view of the many types seen, but many fractures of the pelvis involve more than one portion. For purposes of treatment, prognosis and results, perhaps a detailed anatomic classification would be the best, provided that fractures would so conveniently group themselves anatomically. However, for the majority of cases a simple classification answers every purpose.

This study was made because there has seemed to be some uncertainty in regard to the ultimate functional results of fractures of the pelvis. While fifty-one cases are perhaps too small a number to generalize from, they will at least give one an idea as to what may be the ultimate outcome of fractures of the pelvis in general. The literature is rather pessimistic about results, stating that the mortality is high, 25% to 50%. It is also claimed that pelvic fractures are rare. This I do not believe, nor can I accept the statements that most pelvic fractures give bad results. On the contrary, I believe that the results on the whole are extraordinarily good—if not anatomically, at least functionally.

Before discussing the cases on which this paper is based, I believe it would be of interest to review some of the literature on this subject. In this way a study of the mechanics of pelvic fractures may be visualized, in so far as one can determine any mechanical forces, and how they were applied to produce the given results. Further, disability periods and end results as studied and reported by other observers may be compared with our own cases.

Fortunately, perhaps, the literature is not very extensive. It is most interesting and generally confusing, not only as to classification of types of fractures, but also as to methods of treatment and prognosis. However, most observers believe that collateral injuries play an important rôle in ultimate disability and mortality. That is, lesions of the bladder, urethra and intestines are serious complications and add to the gravity of the prognosis. In this series, such complications have been rare.

REVIEW OF THE LITERATURE

1. Jensen reports eighty cases from four Copenhagen Hospitals in five and a half years. There were twenty-five fatalities, due largely to other serious complications such as rupture of the bladder and urethra. Fracture of the pubis alone was the most common type of single injury. Jensen believes that in order to make a diagnosis the pelvis should be palpated and examined with the patient reclining on the back, side and abdomen in turn, flexing and moving the limbs, also with the patient sitting and standing, twisting and turning. All this seems rather unnecessary so long as an X-ray is available, and an X-ray examination is certainly safer and more comfortable for the patient. He believes that a long rest in bed is essential to a good result.

2. Burnham reports twenty-nine cases of fractures of the pelvis and states that single fractures are the most common, the ilium being more often involved than any other portion. Thirty-eight per cent. of his series showed genito-urinary symptoms. He believes that the return of permanent good function is not great and that pain, weakness and some lameness persists for a considerable time.

3. Hawkes reports a case of fracture of the pubic arch with extraperitoneal rupture of the bladder, which recovered following operation. He reports a mortality of 74% from 127 collected cases covering nearly a century. The pelvic fracture in his case made a normal recovery with good function. Extraperitoneal ruptures of the bladder are rare, especially in children. One recent case which has come to my attention has made a good recovery.

4. Bejul believes that fractures of the pelvis are caused by direct, heavy trauma, and also by muscle action. He believes that extension is an efficient method of treatment and that rest in bed for eight or ten weeks is necessary. He states that the prognosis is poor in these cases and that the usual mortality is about 33%.

5. Orator reports results in seventy cases of

*Read before the Boston Orthopedic Club February 13, 1928.

†For record and address of author see "This Week's Issue," page 45.

fracture of the pelvis at the Van Eiselsberg Clinic. Anterior circular fractures and marginal fractures made up 80% of the total; acetabular fractures 5%; posterior circular and Malgaigne's fracture 25% to 30%. In 39% of the cases the results were good, and in 22% the results were poor. He believes that fractures of the pelvis occurring at an advanced age have a very poor prognosis.

6. Rahmann reports sixteen cases of central luxation of the head of the femur. He believes, so far as the treatment goes, that all that is necessary is rest in bed at first, followed by massage and exercises. In extreme cases, that is, where there is much bony displacement present, extension on the leg is advisable. In view of this passive treatment, he estimates the functional disability at only from 15% to 40% in untreated cases. He does not disclose the percentage of function in treated cases.

He states that even when the dislocation was not recognized or treated, the permanent disability did not amount to more than from 15% to 40%, by the end of the second year.

7. Llewellyn and Jones, in their valuable and interesting book on "Pensions and the Principles of Their Evaluation", discuss fractures of the pelvis in terms of their title. They believe that fractures, single and multiple, of the pelvic bones may occasion permanent incapacity and should be evaluated at 100% disability, fractures less severe from 25% to 35%, and acetabular fractures, with and without ankylosis, at from 40% to 80%. They believe that these fractures are the outcome of direct and severe violence, and that their gravity consists essentially of the probability of associated lesions in the pelvic viscera. They also state that these soft part lesions are more common following fractures of the brim of the pelvis. An obstructed pelvic outlet in women is not an uncommon result with fractures of the brim and acetabulum. They estimate the mortality of all types at 50%, which seems rather large.

8. Hirsch states that fractures of the pelvis constitute from .3 to 1% of all fractures in general, but under conditions relating to the mining industry, their relative incidence increases up to 5.3%. He believes that rest in bed with a swathe for four weeks, in most cases, is sufficient. In Malgaigne's fracture weight extension is all that is necessary. Results in fractures of the acetabulum are not good.

Fourteen cases of fracture of the wing of the ilium required forty-seven days of hospital treatment; all made good eventual recoveries. Fifty-five cases of injury to the anterior pelvic girdle required an average of fifty-five days of hospital treatment; all recovered well except twelve who had urethral injuries.

In twenty-two cases of injury to the anterior pelvic girdle, and fracture of the ilium and sacrum, seventy-one days of hospital treatment were necessary. All cases eventually recovered from disability except one that died. Nine cases of acetabular fracture required an average of one hundred and twenty-five days of hospital treatment. The disability in the cases ranged from 33 1/3% to 75%. There were nine deaths in one hundred and two cases of fracture of the pelvis.

These figures are interesting and it almost seems as if we reached the low limit of hospitalization for these types of fracture.

9. Feldman believes that penetration of the head of the femur through the perforated acetabulum into the pelvis is one of the rarest dislocations of the hip joint. Just why these conditions, which are essentially fractures, should be called primarily dislocations, I cannot quite determine. He states that replacement is typically easy and not painful, and that the progress should be guarded. Against what it should be guarded, he does not state.

10. Skillern and Pancoast report a case of fracture of the acetabulum complicated with an impacted fracture of the femoral neck. The result was good at the end of four months, although there was slight limitation of abduction. The patient walked without limp or pain.

They bring up an interesting mechanical question, namely, to quote "When, given a certain vulnerating force, does the acetabulum yield to fracture, and when the neck of the femur"? They believe that when the force is applied through the long axis of the neck of the femur, the acetabulum yields because of the Gothic-arch-like construction of the bone laminae of the neck, which resist forces applied approximately in the same axis of the neck. Forces applied in other planes to these bone laminae may result not only in fracture of the neck but of the acetabulum as well.

11. Heinemann adds two cases to twenty-two on record of Malgaigne's fracture. In one of the cases reported, traction easily reduced the lateral dislocation. The eventual result was good.

12. Whitman, in a paper limited to the consideration of fractures of the base of the acetabulum with penetration of the femoral head, uncomplicated by extensive fracture of the pelvis, believes that the practical indication of treatment is to assure a sufficient range of abduction, and advocates his usual method of abduction with fixation in a plaster cast. He reports one case with a fair result of such a method of treatment.

13. Haumann reports eighteen cases of unilateral dislocation of the pelvis, probably Malgaigne's fracture. He states that the outcome was favorable in from one to seven months. In all cases the pelvis seemed strong. In some cases, as in one of mine of a similar type, there was a paralysis of the leg which cleared up. Full earning capacity was regained in eight cases; in three cases there was about 10% disability, and in no case was it over 25%.

14. Cottalorda has experimented on several

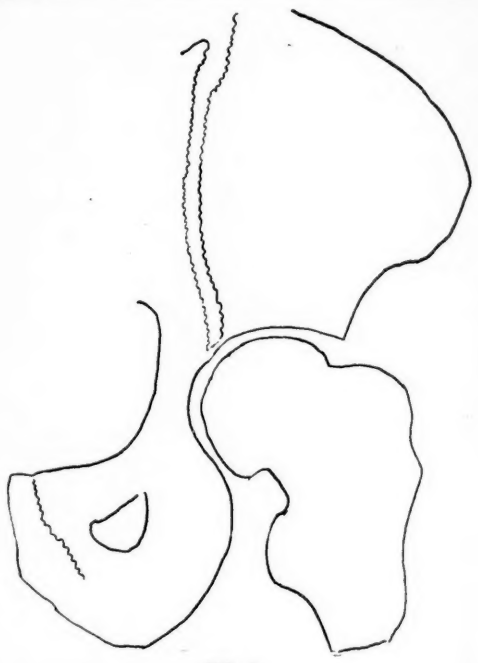
NAME AND DATE OF ACCIDENT	AGE	CAUSE OF ACCIDENT	TYPE OF FRACTURE	TREATMENT	CONDITION WHEN LAST SEEN OR HEARD FROM
David Sliney 4/10/26 Cambridge Hosp.	62	Auto Accident	Left ilium into acetabulum. Ruptured intestine. Fracture of the superior ramus of the left pubic bone.	4 days, bed and swathe	Dead. Probably ruptured gut. (X-ray No. 1).
Richard Sutton 7/21/26 Cambridge Hosp.	18	Caught in elevator	Right wing of ilium into sacroiliac joint, with slight displacement of fragment. Complete paralysis, sensory and motor of right leg.	Bed 8 weeks, followed by brace and physiotherapy.	1 year after, well except for slight paralysis of motion in toes of right foot. Power, however, is returning; sensation of foot normal.
John Dabney 9/12/22 Cambridge Hosp.	17	Thrown from horse against tree	Linear fracture through wing of right ilium.		9/13/22. discharged to own physician; end result not known.
Frank Hartford 9/13/22 Cambridge Hosp.	45	Fell 15 ft.	Compression fracture of the 3rd lumbar vertebra; fracture of the left ilium close to sacroiliac joint.	Treated at another hospital; told he had contusions and no fractures.	End result not known; corset O.K.
Daniel Kanert 9/11/20 Cambridge Hosp.	19	Auto Accident	Fractured crest of ilium: slight displacement.	Bed	Result no known.
Catharine Rogers 4/2/26 Gale Hospital	17	Struck by motorcycle	Fractured wing of right ilium.	1 week in bed	9/28/26 Well.
Frederick Pope 8/5/23 Waltham Hosp.	33	Auto accident	Fractured wing of ilium. No displacement.		Discharged home to Worcester, 8/8/23
David Nice 11/29/22 Cambridge Hosp.	41	Fell 2 stories	Fracture through right wing of ilium; slight downward displacement of fragments.		1/12/23, discharged, well and walking. (See. x-ray No. 2)
Wm. J. Lynch 7/26/25 Waltham Hosp.	58	Jumped from street car- struck by auto	Fracture through wing of ilium without displacement. Fractured fibula.	In Hospital 71 days.	9/20/25 up in chair. 12/2/25 walking. 8/13/26 not yet working; no limp; uses cane.
Edw. J. Collins 6/19/24 Cambridge Hosp.			Fractured wing of ilium with considerable separation. (Left wing)		Not known. (See x-ray 3)

NAME AND DATE OF ACCIDENT	AGE	CAUSE OF ACCIDENT	TYPE OF FRACTURE	TREATMENT	CONDITION WHEN LAST SEEN OR HEARD FROM
Wm. West 4/24/22 Waltham Hosp.	57	Fell 20 ft.	Dislocation and fracture of left pubis; fracture of left ilium.		Worked for two weeks after accident; no treatment; no limp; painful exostosis in adductor group on the left.
Wm. Geary 5/26/21 Waltham Hosp.	49	Caught between two railroad cars	Fractured wing of ilium on right, near the sacroiliac joint.	4 weeks in bed	Slight limp; legs equal length; says he has backache and can't work; wearing a pelvic belt.
Ada Henderson 4/17/27 Cambridge Hosp.	25	Auto accident	Fracture of right pelvis, ascending ramus of pubis, and descending ramus of pubis. Moderate displacement of upper fragment.	2 months in bed	July 1927, O.K. walks, dances; no pain or limp.
Mary Deastlov 12/26/25 Cambridge Hosp.	50	Auto accident	Ascending and descending rami of right pubis.	8 weeks in bed	Thirteen months after, no pain, no shortening, no limitation of motion at hips; stands and walks well.
Agnes Coakley 12/8/20 Cambridge Hosp.	20	Auto accident	Fracture right pubic bone and ischium Compression fracture 12th dorsal vertebra. Several transverse processes fractured.	Still needs treatment	1 year after, pelvis well, legs spastic, but sensation is good; up with crutches; disability due to spastic condition of legs from fractured spine.
Robert Wockler 12/20/25 Cambridge Hosp.	20	Auto accident	Separation of the symphysis of the pubis. Retention of urine. Fracture of right pubis.		Not known. Ruptured urethra.
Austin Kibbe 6/2/20 Cambridge Hosp.	38	Auto accident	Fractured ascending right ramus of pubis. No displacement; fractured ribs.	Bed and frame	Sept. 23, 1920, up and walking, O.K. " 30, " discharged.
Eva Bibeault 9/6/25 Gale Hospital	30	Auto accident	Fracture near outer end of ascending ramus of left pubis. Fractured left wing of sacrum.		Discharged 10/5/25. Seen by own physician after discharge; working right along O.K.
Vito Benevetto 3/29/23 Gale Hospital	36	Struck by Auto	Fractured ramus of the pubis right, and tuberosity of ischium, without displacement.		Discharged 5/9/23, end result not known. Left Hospital on request, against advice.
Edw. Sliney 8/15/22 Cambridge Hosp.	40	Auto accident	Fractured horizontal ramus of right pubis: fractured transverse processes on left of 2-3-4- and 5 lumbar vertebrae; fractured fibula; fractured clavicle.	Jacket 9/1/22; bed.	Discharged 9/23/22; end result not known.
Cecil Hyde 8/16/25 Cambridge Hosp.			Fractured descending ramus, left pubis; no displacement.		12/19/26; well, working as usual doing forestry work.

NAME AND DATE OF ACCIDENT	AGE	CAUSE OF ACCIDENT	TYPE OF FRACTURE	TREATMENT	CONDITION WHEN LAST SEEN OR HEARD FROM
Manuel Flores 11/10/22 Cambridge Hosp.	38	Fell 30 ft.	Fracture comminuted through horizontal and descending ramus of pubis, right.	Swathe, bed and frame	Well, no pain or discomfort. Working as usual at laboring work. (12/17/26)
Helen Maloney 8/24/25 Waltham Hosp.	20	Auto accident	Fracture horizontal ramus of pubis.	In bed until 10/22/25 73 days in hospital.	Discharged 11/3/25. At discharge walked with slight limp, otherwise, all right.
Bernard Pelleriti 10/12/23 Waltham Hosp.	30	Fell 15 ft. or 20 ft. -- staging broke	Compression fracture of the 12th dorsal vertebra; fracture of the horizontal and descending rami of the pubis.	On Bradford frame, forty-six days in hospital; swathe. Discharged from hospital 11/25/23.	9/30/26. Perfectly well: runs a barber shop; works regularly; (see x-ray of pelvis No. 4)
Muriel Justean 9/18/22 Waltham Hosp.	18	Hit by auto	Fracture of the ascending ramus of the ischium: no displacement.	Bed and swathe, 39 days. in hospital. Discharged 10/26/22	Not known.
Mary Curran 2/6/26 Cambridge Hosp.	26	Auto accident	Fracture ascending and descending rami of right pubic bone, and descending of left pubic bone.	Bed and swathe, eight weeks.	Good result; no discomfort. (x-ray No. 5)
Gaetano Maiocco 9/12/23 Waltham Hosp.	36	Fell from ladder	Fracture of the horizontal ramus of pubis and ascending ramus of ischium through obturator foramen. Fractured radius.	Bed most of time; in hospital fifty-four days.	See x-ray No. 6.
M. Driscoll 10/12/25 Waltham Hosp.	18	Auto accident thrown from car	Fracture of the ascending ramus of the pubis, without displacement.	Bed swathe; thirty-six days in hospital: up 11/5/25. Discharged 11/16/25.	Not known.
Henry C. Folger 8/30/24 Waltham Hosp.	65	Auto accident	Fracture of right femur; fracture of left hip and left clavicle. Fracture of both rami of pubis same side. Impacted fracture of the neck of left humerus.	126 days in hospital. Discharged 12/24/24	Considerable disability at end of one year from fracture of legs.
Fred'k Smittie 6/12/26 Waltham Hosp.	36	Auto accident	Fractured both horizontal rami of pubis and descending ramus of ischium, and both bones of left lower leg. Compound fracture of the head of the fibula on the right.	Bed, with swathe and cast to legs. Hospital 64 days.	8/14/26 at home, walking with crutches.
Harry Willis Jones 10/7/26 Waltham Hosp.	71	Fell off a cart, and horse fell on him.	Fractured horizontal ramus of pubis and ascending ramus of ischium same side. Moderate displacement of fragments. Question of separation of the sacroiliac joint on opposite side.	Bed, swathe, and frame. 71 days in hospital. Discharged 12/4/26.	12/3/26, walking with crutches. (See x-ray No.7)

NAME AND DATE OF ACCIDENT	AGE	CAUSE OF ACCIDENT	TYPE OF FRACTURE	TREATMENT	CONDITION WHEN LAST SEEN OR HEARD FROM
Mr. Mitchell 7/5/26 Cambridge Hosp.	41	Auto Accident	Fractured both rami of both pubis.	Frame and swathe Discharged 8/21/26	Condition excellent when he left hospital; no disability. (See x-ray No.8)
Martin Rosa 11/27/19 Waltham Hosp.	38	Jammed between car and truck.	Fracture of ilium on right; fracture of pubis and ramus of ischium.	8 weeks in hospital, then crutches four months.	3/3/20. Walks with marked limp: legs equal length.
Matthew Coffey 10/17/18 Waltham Hosp.	19	Run over by truck	Fractured pubic arch.	Cast. In hospital three months.	5/22/19; legs equal length; no deformity; no disability.
Albertina Healey 5/12/20	13	Auto Accident	Fracture of descending ramus of pubis. Slight displacement	Pelvis in cast: in hospital six weeks.	9/22/23. Slight limp: legs equal in length; slight limitation of abduction and outward rotation. No disability.
Even S. Crocker 3/28/23	15	Fell 15 Ft.	Fracture of ascending and descending ramus of left pubis.	In bed six weeks after accident.	Aug. 19, 1924; some limitation of internal and external rotation of left thigh: no shortening; in bed six weeks after accident; complains of pain in back and says he cannot work.
Donato Santille 4/17/25	38	Fell	Fracture of pelvis —- pubis.	Six weeks in bed.	One half inch shortening of right leg; slight limitation of outward rotation at left hip; not working because of pain in lower back; wearing a pelvic belt.
John Mehan 9/1/26 Cambridge Hosp.	43	Fell 15 ft.	Central fracture of right acetabulum	Eight weeks in bed.	Four months after, up and about: no limp; no shortening; slight limitation of abduction and outward rotation. Practically O.K. (x-ray No.9)
John Hutchins 3/1/25 Gale Hospital	35	Struck by Auto	Comminuted fracture of right acetabulum and wing of ilium above.	Discharged from hospital 4/12/25.	Up and walking about when discharged; end result not known.
Miss Meagher 6/29/26 Cambridge Hosp.	30	Auto accident.	Central fracture of the posterior portion of the acetabulum, left.	Bed, and swathe.	12/22/26. Slight limp and slight limitation of outward rotation and abduction; 3/4" shortening: walks with leg adducted. (See x-ray No.10, 7/22/26)
Thomas Clark 9/5/25 Cambridge Hospital			Central fracture of right acetabulum.		End result not known.

NAME AND DATE OF ACCIDENT	AGE	CAUSE OF ACCIDENT	TYPE OF FRACTURE	TREATMENT	CONDITION WHEN LAST SEEN OR HEARD FROM
Laughlin Evelyn F. Mc- 6/17/24 Waltham Hosp.	36	Auto Accident	Central fracture of the acetabulum, right, also, comminuted fracture of the lower end of the humerus on the left.	Bed, with traction to arm. Fifty-three days in hospital. Discharged 8/7/24 to own physician.	End result not known. (See x-ray No. 11)
Kenneth Waite 11/17/24 Waltham Hosp.	7	Auto Accident	Slight fracture of acetabulum; slight displacement. Fracture of ascending ramus of pubis off the left. Question of concussion.	Frame and swathe; nineteen days in hospital. 12/2/24 discharged.	End result not known.
Geo. McLellan 12/24/25 At Office	64	Slipped on ice.	Central fracture of acetabulum.	Bed three weeks. No medical attention.	June 1926: limp; 70° permanent flexion. Adduction 10°; no motion in rotation or abduction. (See x-ray No. 12)
Oran Cushman 6/16/26 Cambridge Hosp.	56	Auto Accident	Central fracture of left acetabulum; also compound fracture of both bones of the left leg; both rami of pubis; head of femur pushed in through acetabulum.	Boston City Hospital Sept. 1925, to Jan. 1926.	Jan. 5, 1927: limp; no work since accident; 20° adduction; no motion in inward rotation or abduction; 1" shortening; pain in hips; not working. (See x-ray No. 13)
Miss Carr (nurse) 4/16/26 Waltham Hosp.	19	Fell off roof three stories	Central fracture of acetabulum on the right, with descending ramus of pubis in two places.	75 days in Hospital. 6/29/26 discharged.	Mar. 1927: Pain when sitting down, otherwise, all right. No limitation of hip motion. (See x-ray No. 14)
Loys Hayward 4/30/26 Waltham Hosp.	23	Auto Accident	Comminuted central fracture of right acetabulum. Fractured skull.	40 days in Hospital; discharged 6/17/26.	June 16, 1927: No limp, no shortening; walks perfectly; slight limitation of abduction on right: internal and external rotation of leg normal. (See x-rays No. 15 and 16)
John Wade 8/16/17 Waltham Hosp.	54	Fell 18 Ft.	Old tubercular hip; relative shortening 5"; central fracture of the acetabulum.	Bed several weeks	May 18, 1918: Uses a cane; 50° permanent flexion; 35° permanent adduction.
A.E.Henderson 4/22/18 Waltham Hosp.	54	Fell 18 Ft.	Central fracture of acetabulum and head of femur. Penetrated into pelvis.	Hospital 2 weeks; bed at home 1 week; then crutches three weeks.	Nov.29,1918: 25° permanent flexion at hips, 3/4" shortening; all other hip motions much limited. April 18,1919: Not working; 45° permanent flexion and 15° adduction. No motion in hip joint.
John J. Kennedy 2/16/18 Office	29	Auto Accident	Fracture, with considerable deformity of left pubic bone and ischium. Inward displacement of left side of pelvis due to fracture of acetabulum.		April 22, 1919: Motion at hip joint normal, except for slight limitation of abduction. Equal length of legs. Working for last three months.
John P. Doyle 1/15/15	29	Fell from tree 35 Ft.	Central fracture of left acetabulum, with inward displacement.	Bed, ten weeks in hospital.	January 15, 1915: Legs equal length; slight limitation of outward rotation; hyperextension and abduction. Occasional pain and slight limp. Leg gets tired. Is a forester and is not able to climb trees.



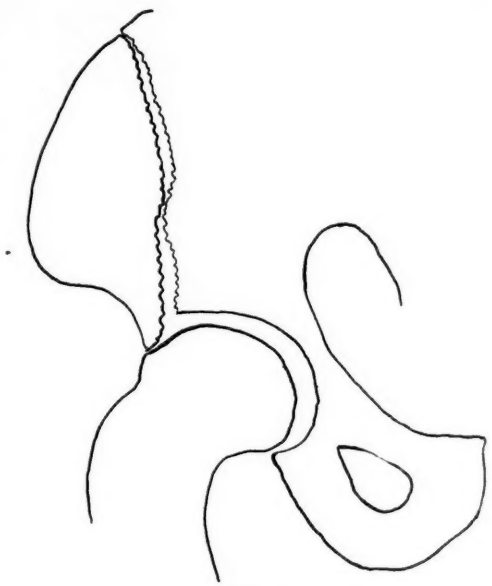
NO. 1.

Sliney. Extensive fracture of the wing of the ilium, and a fracture through the descending ramus of the pubis. Died in four days.

cadavera, using force applied through the trochanter. He believes that a fracture of the acetabulum may be produced by a relatively slight fall or blow, when applied in the right direction. This is in agreement with Skillern and Pancoast.

He describes four anatomico-pathological types of fracture from direct cause, as follows:

1) Fractures by detachment, in which the acetabular fossa was entirely detached from the crescentic articular cartilage of the acetabulum



NO. 2.

Nice. Fracture through the right wing of the ilium, with downward displacement of the outer fragment. Perfectly well, one year later.

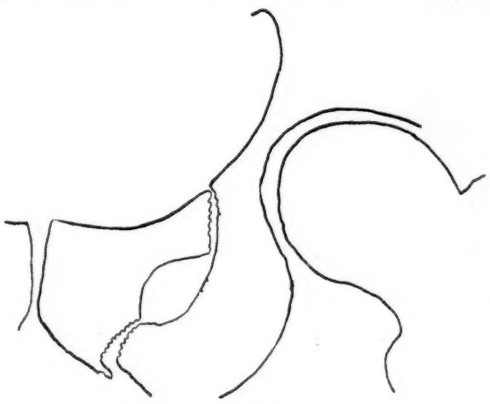
NO. 3.

Collins. Fracture of the wing of the left ilium, without much displacement of the fragments. End result not known.

and broken into two nearly equal fragments. The displacement was toward the pelvis and lifted the obturator vessels and nerve, a condition which showed the possibility of obturator neuralgia early or late.

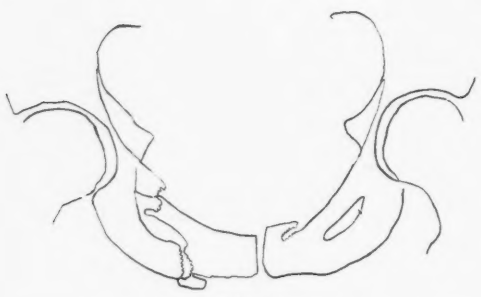
2) Rectilinear fractures of the acetabulum into two fragments.

3) The classical fracture into three fragments,



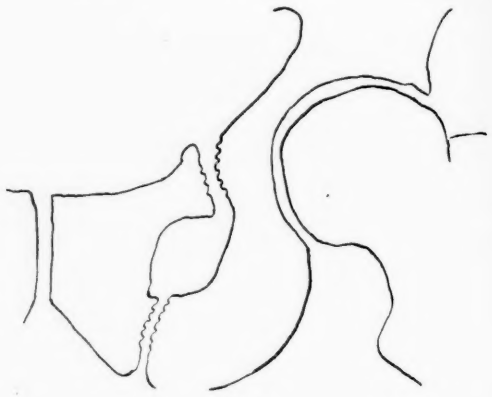
NO. 4.

Pelleriti. Fracture through the horizontal ramus and descending ramus of the pubis; through the obturator foramen. This man also had a compression fracture of the 12th dorsal vertebra. Perfectly well and working when heard from three years later.



NO. 5.

Mary Curran. Fracture of ascending and descending rami of the right pubic bone, with some displacement of fragments; also, a fracture of the left pubic bone. Practically well at end of eight weeks.



NO. 6.

Gaetano Maiocco. Fracture of the horizontal ramus of the pubis, the ascending ramus of the ischium and extending through the obturator foramen. End result not known.

NO. 7.

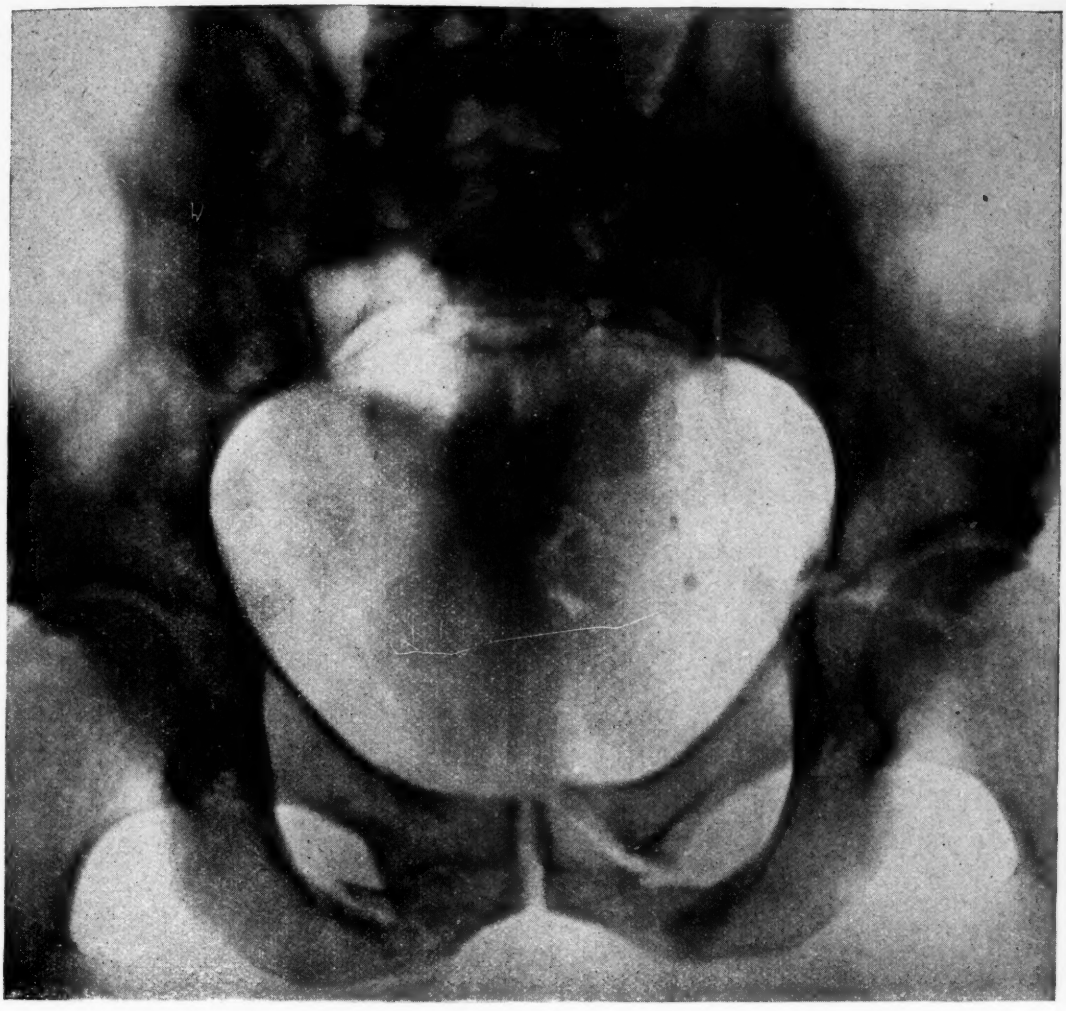
Jones. Age 71 years. Fracture of the horizontal ramus of the pubis, and the ascending ramus of the ischium, with moderate displacement of the fragments. Separation of the sacro-iliac joint on the opposite side with marked change in the level of the symphysis. Excellent result, with very little disability, in three months.

in which the line of fracture in the fossa seemed to reproduce well the fetal portion of the "Y" cartilage of the acetabulum.

4) Star shaped fractures into four fragments.

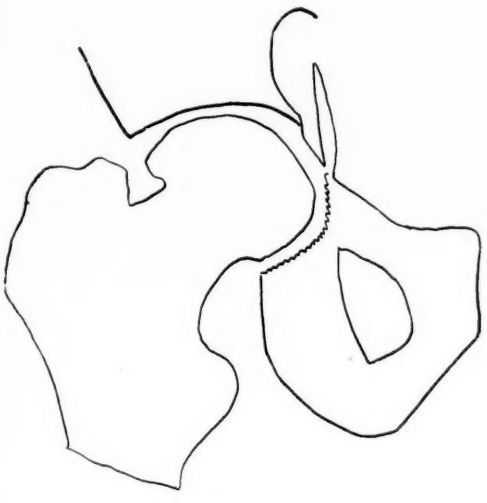
He believes these fractures are produced by a force applied directly through the trochanter and directed obliquely downward, inward and slightly backward, with the limb in extension, forced internal rotation, half way between abduction and adduction. With the leg in forced internal rotation, the head of the femur is in maximum contact with the acetabulum. It is in this position, then, according to Cottalorda, that the so-called bursting fractures of the acetabulum are caused.

15. Coley reports a case of central fracture



NO. 8.

Mitchell. Fracture of both rami, of both pubis. Question of fracture through the acetabulum of the right hip. Result at end of eight weeks excellent.



NO. 9.

Mehan. Central fracture of the right acetabulum, with a large fragment extending into the pelvis. Practically perfect result four months after fracture.

of the acetabulum as the result of a forcible fall on the trochanter. With the abduction method of Whitman considerable immediate improvement was obtained, and seven months after injury the patient walked without an appreciable limp, and had full range of motion in the hip joint. Cast fixation in this case was kept up for five weeks.

16. Boorstein reports a case of central fracture of the acetabulum associated with possible ischiatic luxation due to fracture of the rim of the acetabulum. The treatment was by a Thomas traction splint for four weeks. The result was excellent and X-rays showed good union, but considerable exuberant callus.

17. Putti reports two cases of central fracture of the acetabulum, or central luxation as he calls them. He has devised a very ingenious method of reduction of this type of fracture. A steel pin is passed through the trochanter from before backwards and at a right angle to the axis of the neck of the femur. A cast is then

applied, leaving the steel pin protruding on the front and back. Heavy elastic traction is then exerted on the pin, in an outward direction, by means of heavy rubber bands fastened to a bent rod incorporated on the outer side of the cast.

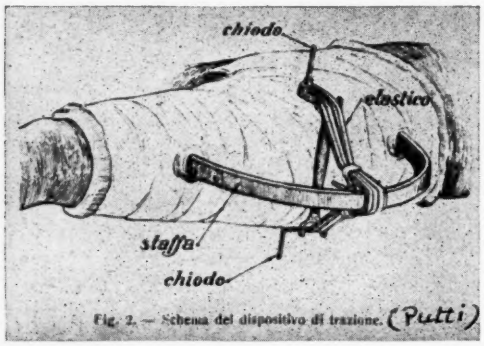


Fig. 2. — Schema del dispositivo di trazione. (Putti)

The traction tends to pull the head of the femur out of the acetabulum and also apparently pulls the acetabular fragments with it, as shown in his X-rays. His results by this method are excellent anatomically and functionally.

18. Boorstein reports six cases of separation of the pubis due to difficult labor, use of forceps and a contracted pelvis. In some of these cases there was as much as 3.5 c.m. separation. Also, he states that in several there was an accompanying separation of the sacroiliac joints. They all recovered without disability after treatment by adhesive strapping.

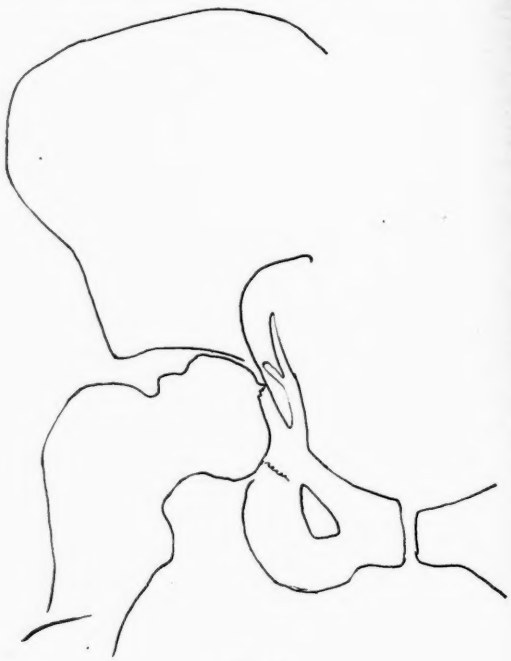
This is a general review of some of the more recent literature. It appears that some of the authors are talking and thinking of more severe types of injuries than are ordinarily seen, except those resulting from mining accidents, and these are limited to the geographical areas in which such work is carried on. In ordinary hospital practice, I believe our fractures are not as severe, nor the results as bad as the literature leads one to expect.

The results, as far as could be determined, in the writer's fifty-one cases, are shown in the following table:

Results	TYPE *Iliac Fractures*	TYPE *Pubic arch*	TYPE *Acetabulum*
Good	3	16	5
Poor	3	2	5
Not known	5	8	3
Dead			1
	11	26	14

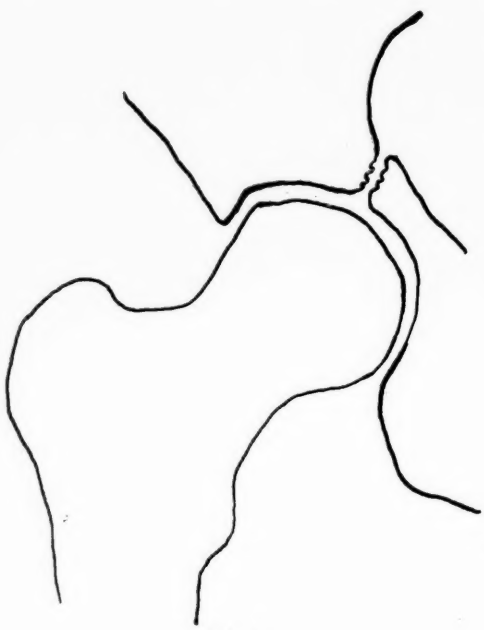
Giving a total of good results of all types	24	or 47%
Poor	10	
Not known	16	
Dead	1	
	51	

An attempt was made to determine the hospital stay of these various patients, but such data as were obtained proved to be too uncertain to be of any value. Offhand such information might seem to be of interest and benefit and has been reported in several papers which have been published. We all know, however, that the number of days in a hospital does not necessarily represent the days of necessary treatment, either minimum or maximum. Various conditions extend or shorten the periods, quite apart from necessary treatment, and such data are



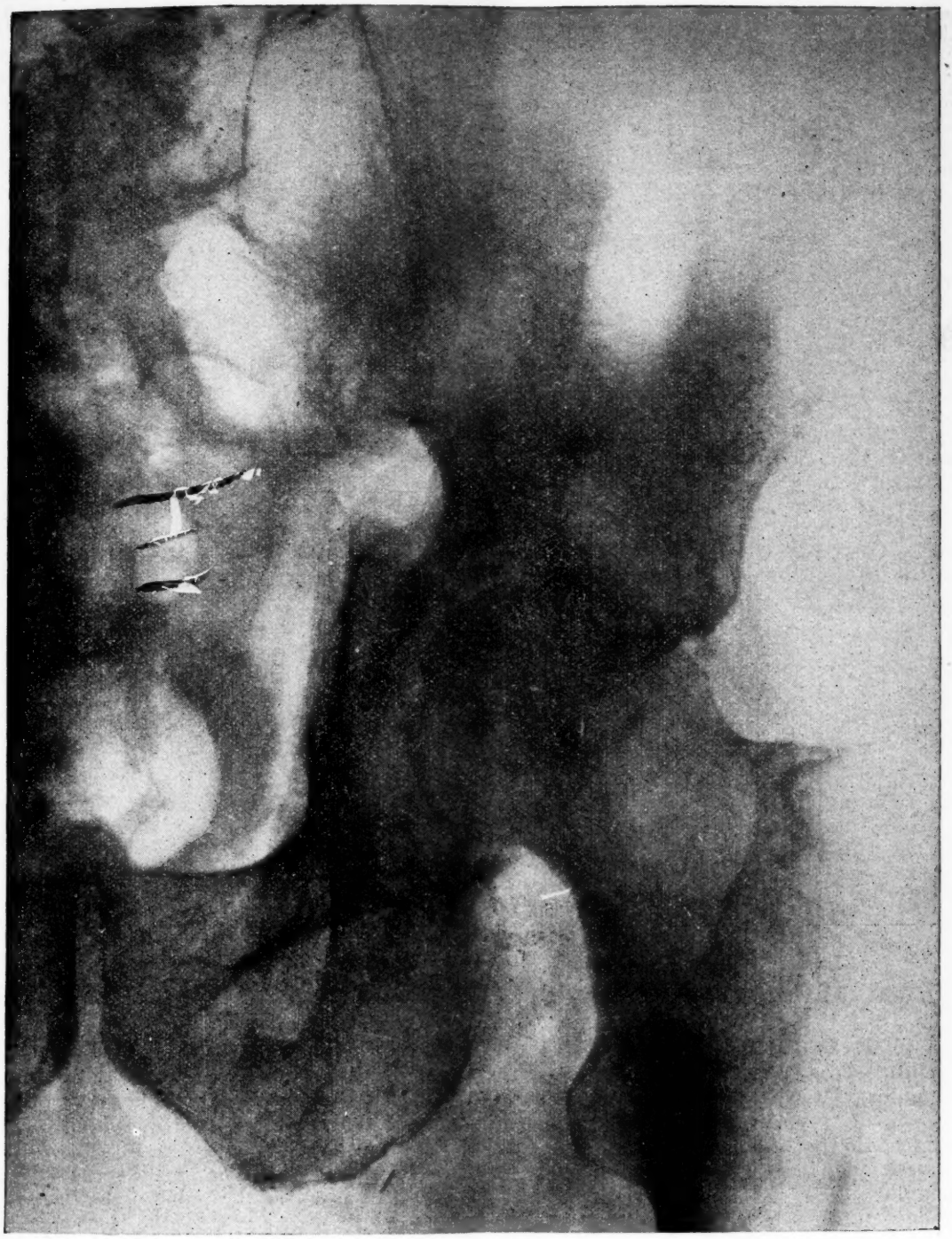
NO. 10.

Meager. Central comminuted fracture of the acetabulum on the left, also a fractured skull. Six months later still considerable disability and loss of motion in the hip.



NO. 11.

McLaughlin. Central fracture of the acetabulum, without displacement. She had, also, a comminuted fracture of the lower end of the left humerus. End result not known, but probably excellent as compared to others of same type.



NO. 12.

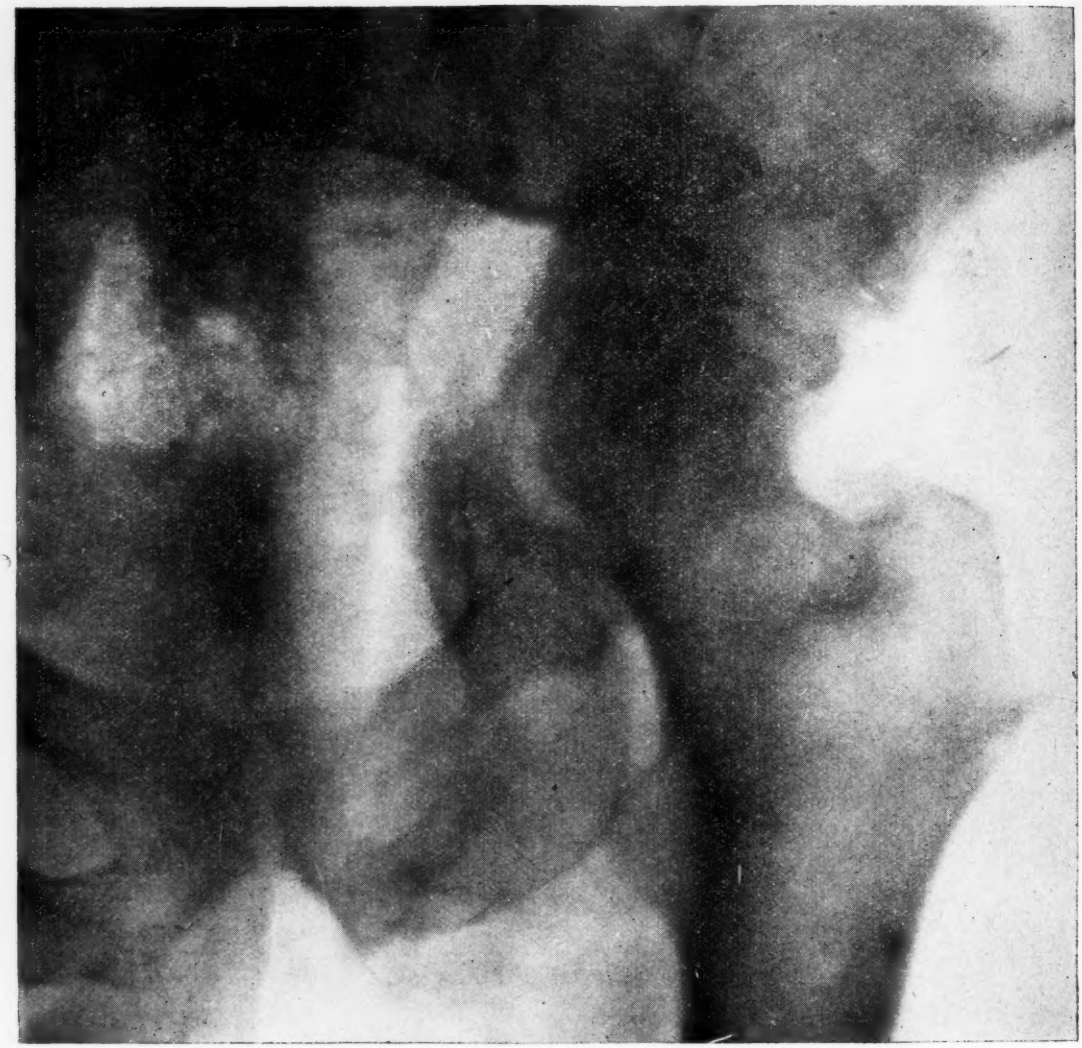
McLellan. Central fracture of the acetabulum, with some inward protrusion. Result, six months after accident, considerable disability. No medical attention.

generally unreliable statistics on which to base any worth while conclusions.

Many of these cases were seen soon after leaving the hospital; others were seen or heard from as long as several years after their accidents, so reliable facts as to actual minimum periods of disability were unobtainable.

Except in those cases that were actually seen and examined, we have no very accurate data—merely the statements that the patients were well and working without any or little discomfort. One fact stands out, however, and that is that there was only one death in fifty-one cases—rather a small mortality, in view of the various published figures of 25% to 50%.

It has been a surprise to me to see how well all the cases did, even those with extensive fractures of the pelvic ring. Many were without



NO. 13.

Cushman. Central fracture of the acetabulum, with fracture of both rami of the pubis. Considerable inward displacement of the acetabulum. This man also had a fracture of both bones of the leg on the same side. Considerable disability one and a half years after the accident.

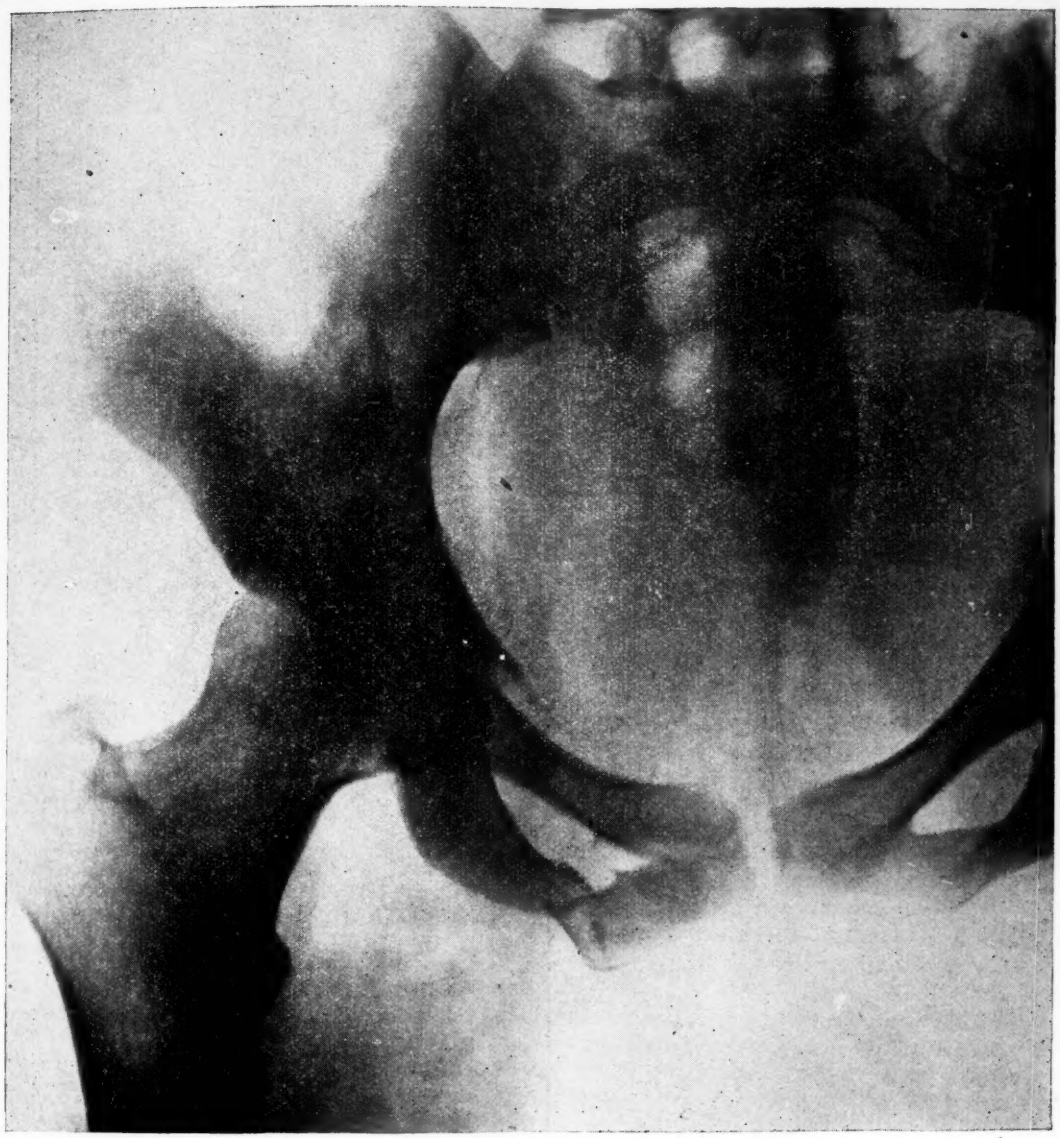
pain, disability or discomfort after a period of a few months. In a few cases, following fracture of the pubis, there has been a development of a bony spicule, probably from a periosteal tear extending into the adductors. This has been bothersome and in one case was removed by operation.

As one would expect, the acetabular fractures have been the most interesting and the most disabling. Simple cracks in the acetabulum, often, with slight bulging of the acetabulum as a whole, have reunited perfectly without pain or disability, and with practically perfect motion. The cases of so-called acetabular dislocation are the most disabling and permanently so. Generally, these cases, or at least the ones I have seen, have been seen too late to carry out any active treatment.

I believe that in all these cases either the Whitman method of abduction, or the more complicated method of Putti's, should always be instituted at once. In no other way can such a condition be remedied or even improved. Without treatment of this type not all, but many, are left with permanently impaired function with a short, adducted leg, or a painful hip.

In regard to treatment of the fractures involving the ilium or the pubic arch: in general, rest in bed, with a tight swathe is usually sufficient for comfort and fixation. The leg may be extended or flexed, as the comfort of the patient may indicate. A pelvic sling may make the nursing care easier, and in extensive fracture, may tend by its lateral compression, reinforced by body weight, to force the fragments together and hold them in position better.

Traction on the leg combined with a pelvic swathe has been found useful in fractures extending through the pubic arch, the sacro-iliac joint and wing of the ilium on the same side with a dislocation upward of that side of the pelvis. The traction tends to reduce this dis-



NO. 14.

Carr. Central fracture of the acetabulum, with a fracture of the descending ramus of the pubis in two places on the same side. Perfect result in every way at the end of one year.

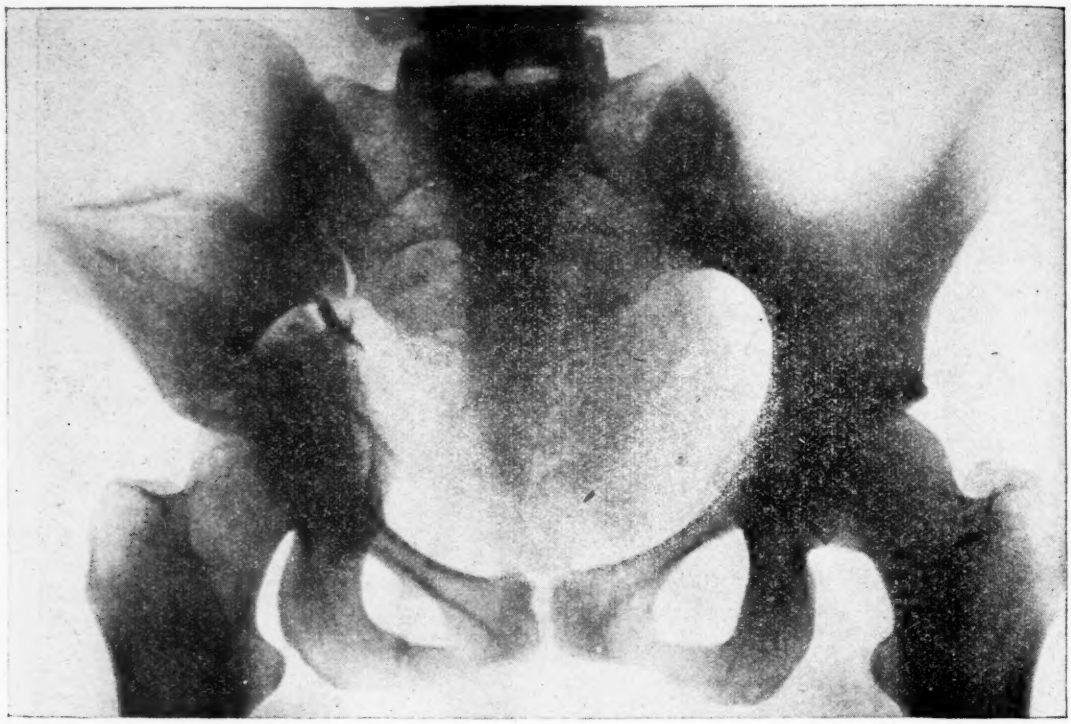
location and usually adds to comfort. Paralysis of the leg, not infrequently seen in these so-called Malgaigne fractures, is generally transient; that is, it is not permanent, and will clear up in anywhere from six weeks to one year.

One case only of fracture of the pubic arch, in this series, suffered from a rupture of the urethra. The patient made an immediate satisfactory recovery, but the end result is not known.

The acute symptoms in these cases are of interest and importance. Many when first seen are in a state of shock—even those with simple fractures of the ilium. The abdomen is apt to be distended, and many times one is in doubt as to the existence of a ruptured gut, or other abdominal injury. This condition, however, providing nothing of that nature has occurred, usually clears up in a few days.

In general, it can be stated that fractures of the ilium without lesions of the abdominal contents give good results. Isolated fractures of the wing of the ilium rarely amount to much from the point of disability. Iliac fractures extending through to the top of the acetabulum may be of more importance, but are rarely so, even when there is gross displacement. Fractures of the rim of the pubis or of the ischium are generally more severe in character, but rarely are permanently disabling. At the worst they are deforming to the pelvic outlet in women, and except when they involve the tuberosity of the ischium, not eventually painful.

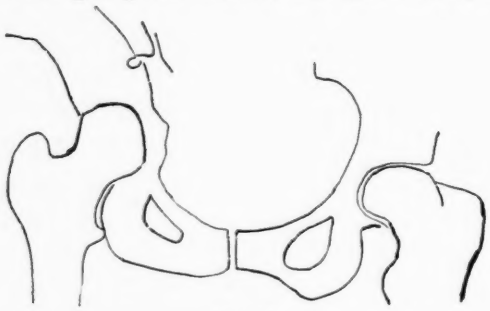
The acetabular fractures resolve themselves



NO. 15.

Hayward. Comminuted fracture of the acetabulum and wing of the ilium. Fractured skull. (See second x-ray.)

into two classes: first, those which merely show cracks in the acetabulum, as well as those which may have a slightly more marked involvement of this articulation—that is, where there has been a slight protrusion of the inner wall, or a



NO. 16.

Hayward. Tracing of x-ray taken eight months later, showing the fracture healed. Considerable asymmetry of the pelvis. No pain, practically no disability; no limp.

spicule broken off from the inner table; secondly, those which show a protrusion of the whole acetabular wall, or even a penetration of the head of the femur, through into the pelvis.

In the first class the prognosis is good for function and little or no disability. In the second class, there is always some disability, generally great, with considerable loss of normal motion at the hip. Treatment, as outlined above, may modify this eventual disability some. Age, occupation and habit of the patient may modify it more. Secondary changes, in years to come, may further increase the hazards of such a fracture, involving as it does, an important weight-bearing joint.[19 20]

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DOCTORS, DOLLARS, AND THE WORKMEN'S COMPENSATION ACT*

BY SAMUEL B. HOROVITZ† OF THE BOSTON BAR

DURING the sixteen years that the Workmen's Compensation Act (G. L. Ch. 152) has been in operation in Massachusetts, the majority of the medical profession have begun to realize that there is at least one class of cases where payment for services generally comes, not from the patient, but from an insurance company. In the usual practice of every day life, if you treat a patient, it is the patient to whom you look for payment. But if the patient be an employee injured in the course of and out of his employment, an entirely new situation arises. Medical men have tried to understand this problem, have struggled with it, grappled with insurance companies, testified at the Industrial Accident Board, and have ended in a terrible legal maze that has threatened to make the physician as neurotic as his patient.

It is, therefore, the purpose of this article, written by a lawyer who is in daily contact with this problem, to set forth a few of the leading principles governing the medical situation, not in technical, legal phraseology, but in understandable, plain English.

THE JURISDICTION OF THE BOARD OVER DOCTORS

If an employee, injured at work, wishes to pay you for your medical services, and does so, there is no legal objection. If later, the employee feels that he has overpaid you, and wishes to get part of the money back or any dispute arises between the two of you as to payment, there is a serious question as to whether either can bring the other before the Industrial Accident Board, as a matter of law. There are two important sections of the Workmen's Compensation Act which cover the medical situation, sections 13 and 30. Section 13 (G. L. chapter 152) provides:

> "Fees of attorneys and physicians and charges of hospitals for services under this chapter shall be subject to the approval of the department. If the insurer and any physician or hospital, or the employee and any attorney, fail to agree as to the amount to be paid for such services, either party may notify the department, which may thereupon assign the case for hearing by a member thereof. The member shall report the facts to the department for decision and the decision shall be enforceable under section eleven."

It will be noted that this section speaks of disagreements between insurer and physician, but not of disagreements between employee and physician, whereas it distinctly speaks of disagreements between employee and attorney. It is, therefore, clear that any employee who overpays a lawyer can get a hearing on the question of reimbursement, but it is still an open question as to the doctor.

Thus in the case of Holland v. Zeuner, 228 Mass. 142 (1917) Chief Justice Rugg intimated that the doctor was on a different footing from the lawyer, and allowed the doctor to collect from the emplyee through the Municipal Court of the City of Boston, instead of through the Industrial Accident Board, for treatment after the first two weeks following the injury, saying the Act "does not cover fees for services which are rendered outside of the Act".

Since then the Legislature has amended the Act relative to the two weeks period (to be discussed later) and hence the foregoing decision has lost much of its force. And there have been dicta in other cases, holding that in disputes between the doctor and the employee, the employee may bring the doctor before the Industrial Accident Board. See Huxen's case 226 Mass. 292 (1917). See also decision of full Board in Herbert W. Percival's case I. A. B. No. 27029.

It is my personal belief that in any dispute on medical bills, whether between the doctor and the employee or the insurer and the employee, any of the parties has a right to a hearing before the Industrial Accident Board, and can obtain a hearing by writing to the Board. I say this because I believe that the jurisdiction of the Board over medical matters should be extended as far as possible, and was intended by the Legislature to be all-extensive. My years of experience with the Board have convinced me that it consists of seven able members, daily in contact with things medical as well as legal, far better equipped for settling medical disputes than the ordinary courts, closer in touch with the worker, his needs, and the insurer, than any other tribunal.

And the Supreme Judicial Court (the highest tribunal in Massachusetts) has recognized the fact that when an employee is injured, he is entitled to medical services as well as to his $18.00 or less weekly compensation. In other words, if Jones is hurt and his family doctor makes a reasonable charge of $25.00 for services during the first two weeks and Jones is out five weeks at $18.00 a week compensation, Jones is entitled to $25.00 plus $90.00; but the chances are that Jones, being poor, will let the insurer pay the $25.00 directly to the doctor; but if Jones paid the $25.00 himself, the insurer must pay him the $25.00 plus the $90.

Thus Justice Crosby pointed out in Wahlberg v. Bowen et al 229 Mass. 335 (1918) at p. 337: "It was held in Panasuk's case 217 Mass. 589 that medical and hospital services and medicines are a part of the compensation to which the employee is entitled".

WHAT CASE IS A COMPENSATION CASE

But what most doctors want to know is, when is a case a compensation case and when is it

*See "Statistics Relating to Compensation Benefits," page 54.
†For record and address of author see "This Week's Issue," page 45.

not. In legal language, compensation cases cover personal injuries to employees arising out of and in the course of employment. In every day language, it may be said to cover cases where a worker is hurt while at work and because of some danger connected with his work.

A simple type of case is where the employee working on a punching press accidently cuts off his finger. The law is not interested in whose fault it was. Negligence plays no part in compensation matters. Industry is simply saddled with the cost of human wear and tear as it has always been saddled with the cost of wear and tear of machinery. The Act, however, has and should be interpreted broadly, so that cases may be within the compensation Act and still not at first appear to the layman as such. Thus, our highest court has allowed compensation for injuries on the premises, leaving after the day's work is done (see Stacy's case 225 Mass. 174, Sundine's case 218 Mass. 1) and in a case before the Supreme Court of the United States, decided February 20, 1928, this doctrine was extended to cover injuries to employees on private property adjacent to the employer's premises (see Bountiful Brick Company v. Giles et al, where an employee was killed on a railroad track adjacent to the brick factory, where he worked, while en route to work, before working hours began, and the widow was awarded compensation).

And the words "personal injury" have been given a broad interpretation. Personal injury covers not only injuries by accident or by violence. It covers diseases brought about by the work; thus, for example, it covers pneumonia due to the inhalation of smoke and drenching with water during a fire (McPhee's case 222 Mass. 1); it covers lead poisoning, due to grinding lead for a period of 20 years, the date of injury being the day when the worker became so sick that he had to quit work or became unable to work (Johnson's case 217 Mass. 388); it covers cases where there was a pre-existing diseased condition which was not disabling, but which, because of the work, became disabling. In other words, the acceleration of a pre-existing condition to a point of disability earlier than it otherwise would have come, due to the work, is just as compensable as a new injury. Thus, the acceleration of a pre-existing pulmonary tuberculosis to a fatal termination is compensable (Glennon's case 236 Mass. 542); or making a pre-existing heart condition worse and disabling by reason of a strain or exertion at work, is compensable (Madden's case 222 Mass. 487; Brightman's case 220 Mass. 17). Frost-bite is covered McManaman's case 224 Mass. 554); so is suicide while insane following injury to eye (Sponatski's case 220 Mass. 526); and death from self-imposed starvation due to psychasthenia and acute depression resulting from injury (Sinclair's case, 248 Mass. 414). For a good résumé of the administration of the Compensation Act in Massachusetts, see article by Robert E. Grandfield, Secretary Massachusetts Industrial Accident Board, pp. 66-74, The Annals of the American Academy of Political and Social Science, March 1928.

TREATMENT DURING FIRST TWO WEEKS

Having determined that your patient comes within the compensation law, and having made up your mind that he has not sufficient financial resources to pay you directly for your services, what are you to do?

You must treat him. Your own feelings, your humanitarianism, your instincts tell you that the patient who comes into your private office, with his leg needing immediate amputation, is going to get from you the needed assistance, and that later on you are going to hunt for someone to pay you.

That someone is the insurance company who has collected ample premiums from your patient's employer. That the premiums are ample is attested by two outstanding facts:

1. the insurance companies are putting up new, large office buildings and fighting for more and more compensation business, in spite of their constant wail that they are losing money on compensation business.
2. and by the fact that with a bill before the Legislature today to do away with insurance companies and substitute a State fund, many insurance companies are fighting the bill frantically.

If compensation insurance is a losing proposition, why do they fight so hard to keep it?

Now how do you go about collecting from the insurance company? Your patient can generally give you the name of the insurance company. Nearly every insurer has an office in Boston. If the patient cannot give you the name of the insurer, you can telephone Haymarket 4600 and ask for the Industrial Accident Board, give the telephone operator the name of the employer and the date of the injury and she will give you the name of the insurer, if there is one. You can then mail your bill to the insurer. But will you collect? Often, after the insurer uses the pruning knife, you will receive a check for what the insurance adjustor thinks is fair, or you may receive a flat refusal—no payment at all.

What can you do? Write to the Industrial Accident Board, Room 272, State House, Boston, Mass., inclosing a detailed copy of your bill with a letter explaining just what you did for the employee and asking for a hearing on the merits of your bill. Within four weeks you will probably receive a notice to be present at a hearing, the insurer will be present, and the employee ought to be present to help your case. The single member of the Board will hear the evidence in a more or less informal manner, most technicalities will be brushed aside, and the member will get at the truth of the matter, and report the evidence almost verbatim to the full

Board (generally consisting of five members) who will then sign and send out the decision, generally within two to four weeks.

And by what principles will this full Board be guided?

There have been several changes in the compensation law since 1912. Originally the employee could not choose his own doctor, not even during the first two weeks. From July 1, 1912 to April 23, 1917, the insurer was compelled (by section 30 G. L. Ch. 152) to "furnish adequate and reasonable medical and hospital services, and medicines if needed" during the first two weeks after injury. The employee had to go to the doctor named by the insurer, or to the insurer's clinic. If he knew of the insurer's doctor and yet went to his own, he would have to pay his own doctor from his own funds, and if he had no funds, the trusting doctor would have only his gratitude for a fee.

Thus in Pecott's case 223 Mass. 546 (1916) the unfortunate doctor had to live on the employee's gratitude for performing a hernia operation four days after the injury, and the insurer escaped liability. Even the "emergency" clause did not help the doctor, as emergency meant something more immediate than four days.

But the court did hold that "furnish" meant "more than a passive willingness to respond to a demand. It implies some degree of active effort to bring to the injured person the required humanitarian relief." Furnish means to provide or supply. So, in Panasuk's case, 217 Mass. 589 (1914) Rugg, C. J. ordered the insurer to pay the doctor $22.50 because the insurer failed to furnish a doctor and the employee, therefore, was justified in selecting his own during the first two weeks; and held further that the posting of a notice by the insurer, wherein appeared a list of doctors, printed in English, was not enough where the employee was illiterate.

But where the employee could read English and had his own doctor during the first two weeks, the doctor's only fee was the thanks of an indigent employee. Davidson's case, 228 Mass. 257 (1917). But even in the old days, the mere posting of a list of doctors and hospitals was not enough to let the insurer escape the bills of private doctors, if the hospital named by the insurer had not made arrangements beforehand with the insurer to care for these employees. Thus, in Ripley's case, 229 Mass. 302 (1918) the insurer posted the name of the Cambridge Relief Hospital as a hospital which employees could use during the first two weeks. There was no evidence that this hospital ever arranged with the insurer to allow injured employees in, and the employee instead went to two eminent doctors in Boston, who sent bills for $25.00 and $37.00 respectively to the insurer, who refused to pay. But Crosby J. of the Supreme Judicial Court ordered payment on the ground that " 'furnish' imports that some arrangements must be made in advance or at least that some one be on hand with authority to make arrangements for medical relief".

So, even in the old days, some doctors not connected with insurance companies, managed to get paid by the insurance company.

Fortunately, however, on April 23, 1917, the law was changed and section 30 was amended by adding,

> "The employee may select a physician other than the one provided by the insurer."

That means that during the first two weeks following the injury (or the time of actual incapacity) the employee can go to his family doctor or any private doctor, and "the reasonable cost of his services shall be paid by the insurer, subject to the approval of the department" (section 30).

In other words, if any employee comes to you today, hurt at work, and it is an industrial case, you can undoubtedly compel the insurance company to pay the reasonable value of your services during the first two weeks, not of your treatment, but during the first two weeks following the injury (or incapacity) judging solely by the calendar.

What is a reasonable charge depends on all the circumstances. In outlying districts, the Board today usually allows $2.00 a visit where the patient calls on the doctor, $3.00 where the doctor calls on the patient. But the Board is always reasonable. If unusual work is done, or the doctor has to travel extensive distances, all this entitles doctors to larger fees. The doctor is generally allowed $50.00 for operating in hernia cases, with additional charges for the assistant, etc. and $22.00 per week for the hospital (recently increased from $21.00). Specialists whose ability and services call for more than the usual rates rarely fail to obtain adequate compensation, not always adequate in their own minds, but adequate when considering all the rights not only of the doctor, but of the employee, the insurer, and the public at large.

Very few difficulties arise today for treatment during the first two weeks, provided the employee *selects* his own doctor, and the bill presented to the insurer is reasonable.

EMERGENCY CASES AND AFTER TREATMENT DURING THE FIRST TWO WEEKS

But supposing the employee is rendered unconscious while working in the street, and is rushed by strangers to the nearest doctor who happens to be you; and you have to amputate a few fingers. Who is going to pay you? If the patient is destitute, you certainly cannot collect from him. If he has money and says, collect from the insurer, you cannot sue him in the ordinary courts, as it is clearly within the Compensation Act and the Industrial Accident Board alone has jurisdiction.

So you send your bill to the insurer, who may write back and say, "We are sorry but the employee did not select you, did not know you

before the injury, and hence you can put down your services as those rendered to mankind in general". Your answer fortunately will probably result in your winning before the Board if you point out in section 30 the following words:

> "or where, in case of emergency or for other justifiable cause, a physician other than the one provided by the insurer is called in to treat the injured employee, the reasonable cost of his services shall be paid by the insurer, subject to the approval of the department."

In other words, make your bill reasonable, show that your "services were adequate and reasonable and the charges reasonable" and "that there was such emergency or justifiable cause" and you will collect.

AFTER THE FIRST TWO WEEKS

Thus far I have discussed your rights as doctors to payment for services during the first two weeks after the injury.

Now supposing the two weeks are up. Can you continue treating the patient and still collect from the insurer? Or, if the patient comes to you as a private patient for the first time after the two weeks are up, can you treat him at the insurer's expense?

There is no categorical answer to this question. It all depends on certain circumstances.

From July 1, 1912 to October 1, 1914 the answer would probably be "no"—any doctor who treated a patient after the two weeks could not look to the insurer for payment.

On October 1, 1914 an amendment was made allowing payment "in unusual cases" beyond two weeks "in the discretion of the department".

It was at first thought that under the heading "unusual cases" most cases, really requiring treatment beyond two weeks, could be brought. Thus in Huxen's case, 226 Mass. 292 (1917) a letter from the insurer to the employee, that he could continue treatment with his own doctor after two weeks at $1.00 per visit was held to be an admission by the insurer that the case was unusual, but only $1.00 per visit collectible by the employee's doctor. But the Supreme Judicial Court dealt the doctors a sad blow in Bolton's case, 243 Mass. 230 (1922) when it said that even if the case was unusual, the Board could absolutely refuse to allow the doctor a single dollar,—that it was discretionary with the Board whether it would allow anything after the second week.

> "Payment in unusual cases is," said Pierce J., "not as of right but in the discretion of the Board . . . the discretion of the Board and not the reasonableness of the services rendered is the determinative fact upon which the right of the petitioner under the statute depends. The reason given by the Board . . . is not open to attack."

But as a matter of actual practice, the Board has been very fair to doctors and if the services were adequate and reasonable and the case really unusual, the Board has used its discretion in favor of the doctor.

And then came Rys's case, 245 Mass. 244 (1923) saying that unusual cases ordinarily include "those requiring major operations, spinal injuries calling for expensive special apparatus and serious injuries to the eye or brain demanding the services of specialists."

And later cases have required that to be unusual, there must be unusual complications following the injury; that no matter how serious the injury, it was not necessarily unusual and cases which the Board held to be unusual were held by the Supreme Judicial Court to be only serious and not unusual and the doctors were denied payment by the insurers.

So the Legislature changed the law again on July 25, 1927 and said that doctors thereafter on *new* cases could collect if the case was unusual *or* "requiring specialized or surgical treatment, in the discretion of the department" after two weeks.

As this change in the law is less than one year old, no case on its interpretation has reached the Supreme Judicial Court. But on the strength of the prior decisions and my knowledge of Board procedure and insurance companies' practices, I make the following suggestions to doctors:

1. if the case really requires treatment beyond two weeks, and the employee prefers you to the insurance company doctor or clinic, you may treat the employee. If your bill is reasonable, the insurer will probably pay it. The smaller insurance companies which have no clinic of their own generally pay without protest. Those having clinics prefer that the patient come to their clinics. And I think it only fair to the larger insurance companies to state that from my experience with them, they can afford excellent and adequate medical services, and give the employee excellent treatment because of their facilities. And many employees choose to go to the insurance companies' clinics from the start.
2. But if the insurer refuses to pay your bill for services after the two weeks period, write the Board for a hearing and be prepared to show
   1. either that the case was unusual; i. e., unusual complications followed the injury, or that it required "specialized or surgical treatment".
   2. that your bill is reasonable.
   3. that your services were adequate.
   4. and ask that the Board exercise its discretion in favor of payment of your bill.

It always a safe plan to try to get the insurer in advance to agree to allow you to treat the case; but if it does not agree, or you want to take your chance and the case really requires your services beyond the two weeks, you have an even chance of collecting a reasonable amount (reasonable in the minds of the members of the Board) for actual services rendered. And I might add that if nurses and others act under your supervision, they too are entitled to the same legal considerations outlined for you, the doctors.

NEW HAMPSHIRE MEDICAL SOCIETY

PRESIDENT'S ADDRESS*

BY EMERY M. FITCH, M.D., F.A.C.S.†

Fellows of The New Hampshire Medical Society and Guests:

IT is a time-honored custom of this society that the President shall deliver an annual address. This custom is as old as our Fraternity, and though the task is somewhat arduous, it at least gives the President an opportunity to express his gratitude for the honor which has been conferred upon him by his colleagues, and possibly gives him the privilege of offering a few suggestions for the good of the organization.

It has been my pleasure during my term of office to give considerable time and thought to the welfare of this society, and I have welcomed the opportunity to render such service in keen appreciation of your preferment in making me President of an association which has been continuously active over a period of one hundred and thirty-seven years, and upon whose roster are found the names of those whose services have been very conspicuous in the formation of the history of this State from before the Declaration of Independence to this present day.

STRENGTH OF COUNTY SOCIETIES

The state medical society is apt to be looked upon as a gathering which convenes once a year at some principal city, there listens to some learned papers, conducts some business in its House of Delegates, enjoys an evening of social relaxation in the form of a banquet and disbands to go to sleep until another year. If this is a true picture of what really exists, it should be changed, for the state society should be a living thing throughout the entire year, and one way in which the present organization can be kept active is by stimulating activity in the component units.

One of the duties requisite to the proper fulfillment of the office of President of The New Hampshire Medical Society is the visitation of the various county societies. This is somewhat of a task, yet it gives one a rare opportunity to come to know rather intimately a wonderful group of men and provides an occasion for meeting the different doctors, not when they are away from home and enjoying the recreation of the annual gathering, but when they are actually at work and have only stopped for a few hours to talk over their immediate problems. By this process of listening in, it is only to be expected that the President of this organization should come to know some of its needs, to know some of the weak spots of its make-up, and possibly be able to suggest a remedy for a few of its ills.

In the fulfillment of my duty I have visited most of the county societies at one of their meetings. These meetings have been well attended and a high spirit of interest taken in the program. This good work must continue and extend even farther, for by active programs in the county societies there will be developed papers which can well be presented at the state meetings.

In order for this society to continue to be successful it must have an annual gathering and at this annual meeting the program must be both entertaining and instructive. The program must be diversified in many ways. It must include, as it has in the past, eminent men from the large centers. These men are well versed in their subjects, well able to express their ideas and present for our consideration and instruction the last word in medical science. We must as individual members, if we would serve our communities to our best ability, avail ourselves of this opportunity to become acquainted with these new ideas.

But that is not all. These men cannot give us our entire program. It remains for ourselves to provide some of the entertainment and some of the scientific program. A child will never learn to walk if it is always carried. Some of these papers must come from our own men. For many the writing of a paper is a most difficult job. It calls for time and study which seem at first thought absolutely out of the question for the average doctor, whose every minute in the day seems spoken for. And not only that,—it calls for composition and compilation of facts which are most difficult for a fellow who has attempted nothing of the kind since his college days and then only because of an undergraduate requirement. This work should be begun in the county societies and the younger doctors should there be encouraged to present papers, and though the task may be arduous for the man who undertakes the job, the greatest benefit will accrue to himself.

Most doctors feel that, living as they do in small communities, they are deprived of close affiliation with large hospitals and by this environment they are prevented from gathering any new facts which they could present in a medical article; consequently a paper which they would write would be simply a re-hash of medical literature. This is not true. Disease is as old as civilization, and we as students were taught in a way to combat such diseases as are current in this section of the world. If we stopped with that knowledge acquired in medical school we should in a few years find ourselves far behind medical progress. Constant study is

*Read at the Annual Meeting at Manchester, May, 1928.
†For record and address of author see "This Week's Issue," page 45.

necessary for us to keep anywhere near abreast of the modern methods of treating disease. In the study necessary to the writing of a paper the man who attempts it will find ways of getting at the latest ideas in diagnosis and treatment and will gather much knowledge beneficial to himself. And not only that,—he will do a surprising amount of good to his fellow practitioners by his review of facts already known but half forgotten. After a fellow has worked up, written and read a paper in his own county, provided he has had proper encouragement, he will find it not so hard to elaborate his article a little further and present it at the annual meeting of this society. The future life and activity of this society depends to a great extent upon the development of this kind of work among its members.

HOUSE OF DELEGATES

The problem of the House of Delegates should be discussed in the county societies and the individual delegates instructed. It is a good plan for the county secretary to be chosen as a delegate to the state society, and he should take in the full session and see that he brings his county up to the standard of all the other counties. By this method each county will know the ideals and standards of the entire state society and the state will become one unit for better things in a medical line. These are the days of organization and it is only by a close affiliation and a spirit of harmony and coöperation that the doctors of this state can be successful.

By a provision of our constitution the meetings of the House of Delegates are open to any member of this society. Any member has a perfect right to attend, but only delegates have the right to vote or a voice in the meeting. It would be beneficial to the society as a whole if more members would avail themselves of this privilege and would sit in at some of these business meetings.

DISTRIBUTION OF PHYSICIANS

In 1900 there was in the United States one doctor to each 450 population. This ratio has gradually changed, until today there is one physician to each 750 population, while at the same time the average age of physicians has increased from forty to fifty-five and experts who have given this subject considerable study find the conditions somewhat alarming.

And yet it cannot be said that many people living in New Hampshire today are suffering for the want of medical attention.

Are we not on the wrong trail, in our attempts as a medical group, if we try now to place doctors in rural communities? The population of our rural communities has greatly diminished in the past twenty-five years, and there is no reason to expect that it will ever again increase. Once thriving villages have, in the advance of recent years, dwindled into small hamlets, and the younger generation has either left the state entirely or sought their livelihood in the larger towns and cities, where advantages are greater and cash more readily obtained for their labor.

As a result of this migration there is no longer a field for the doctor in small communities. There are but few towns with a population of less than 2,000 so situated geographically that a doctor could locate in them and obtain suitable returns to guarantee a good living. The reason for this is easy to see, for most of these hamlets are within fair distance of some larger town, and it is to these larger towns that the people look for their medical advice. People in these rural communities are well educated and well abreast of modern achievement, and they seek the best. They naturally discredit the doctor who locates in their midst and seek more distant medical advice, at a greater expense.

We as a profession must recognize this changed condition and our problem needs only be to keep a proper supply of doctors in towns of 2,000 and over. This problem will be solved by the law of supply and demand. The number of young men and women who are now seeking higher education is growing by leaps and bounds. To quote Dr. Hopkins, President of Dartmouth College, in a recent summing up of these facts:

> "America has gone in for education. Within the boundaries of the United States there is being conducted the greatest educational experiment the world has ever known. Visitors, individuals and groups, come from abroad to observe the phenomenon. Everywhere throughout Christendom intelligent men are watching with interest and admiration the development of this social experiment of making learning accessible to the whole of a great people.
>
> "As compared with the year 1890, there has been 79 per cent. increase in the population of this country. Meanwhile, the number attending public high schools and preparatory schools has increased more than 2400 per cent. In the colleges, there is at present nearly 400 per cent. the enrollment as compared with this period of nearly four decades ago."

After the raising of standards in our medical schools and the curtailment of many schools, the supply of recent graduates became greatly limited. Men going to college chose all other lines except medicine,—not simply because other lines gave a more rapid road to their life work, but chiefly because, from an economical and profitable standpoint, the life of a physician was no longer attractive. Young men could see no future in a life of peddling pills as compared with a life of manufacturing, business, politics or even the other professions like law, teaching or the ministry. Today the trend is different. Students finishing their college course are again turning to medicine and each year sees our medical colleges crowded with applicants far in excess of the number allowed to matriculate. In the two-year school at Dartmouth, which is very much limited as to size, the applicants in the past few years have quadrupled the number of students accepted. This is but a type of all the schools. There are no first class medical schools but have all the pupils they can accommodate. The graduates from these schools go to the cities,

for they have been trained to hospital life and they seek the place to live that will give hospital advantages. This country as a whole will never see a shortage of doctors in its cities, nor will New Hampshire see a shortage in any town or city boasting of 5,000 population. Shortage in rural communities is inevitable, for no doctor can afford to spend his time in those sections.

However, people living in these isolated sections of our state must have medical attention in time of need. This can be best obtained by keeping well connected with the trading centers. These people must be provided with good roads and these roads must be kept open in winter. This is the salvation of our farm sections today. Trunk lines must be well built and the snow well removed, and, in addition to that, the contributing roads must be so constructed that they will be at least passable at all times of the year, and the snow must be removed from these roads to allow the passage of automobiles. Where this is done our farm sections are not going to feel a lack of medical attention, for professional services will be available. There will always be doctors in the larger towns near enough to reach the sick in the smaller hamlets. To be sure, the fees will be larger than those paid the country doctor of thirty years ago, and some form of state aid may be required to help these people who are clinging to the hillsides and finding hardly sufficient return from their labors to provide the simple necessities of life, to secure adequate medical assistance in their extreme time of need. If these hamlets, or the state, or some charitable organizations, can guarantee the doctor's fee, these people will not suffer for want of medical skill.

LADIES' AUXILIARY

We are asked on all sides as to what is and what should be the attitude of this society towards the Ladies' Auxiliary. Three years ago the House of Delegates voted to adopt this organization. In doing so, this society agreed to accept the idea. Last year that same governing body voted a sum of money toward the support of the auxiliary. Now the only just and fitting thing left for us to do is to aid the growth of this new organization.

Some of the county societies have very active auxiliaries which meet at the same time as the county societies and participate to a certain extent in the same activities. Whether or not this is a wise plan I leave to your own judgment. It seems wise in a way that the county societies have at least a part of their meeting exclusive of anybody outside of the profession, for there are some problems which need to be discussed by members only. These county meetings should properly be for medical matters, and the programs should consist of scientific papers and discussions, and other problems current in that particular county. These problems cannot be well handled in the presence of others than doctors, and the presence of ladies who are not physicians certainly proves a handicap to free and open discussion. If the meeting of the auxiliary is held on the same day as that of the Medical Society,—a practice I am well enough in favor of,—it should certainly be in a separate room, especially during the scientific and business program.

There surely is a time and place for the Ladies' Auxiliary, and I believe that the State Society will receive lasting benefit from this organization. It was demonstrated last year, when the meeting was held outside of its usual environment, that the ladies went and took their husbands with them, for the ladies were very much in evidence and their presence was appreciated. So it is this year. The Auxiliary is contributing to our entertainment and I am sure we shall all go away from this meeting with a feeling of gratitude to this our adopted child.

NEW ENGLAND MEDICAL COUNCIL

The New England Medical Council is now two years of age. This movement was started as an experiment, with the idea of bringing closer harmony between the various state medical societies of New England. As in the case of many another new organization, it is more or less difficult to point to its achievements. However, there is no doubt that this organization will, as years go on, accomplish much. The most hopeful sign thus far is the way in which the meetings are attended. At all its meetings there has been a representative from each state in New England. Frequently all of the delegates from some states are there, and always there is a large majority of all the delegates.

Thus far subjects of medico-legal defense, distribution of physicians and reciprocity have been considered. On the matter of medical defense a clearer understanding has been possible and a movement well started to make just protection more easily procured. The State of Maine has the most effective organization along this line, and it is hoped that New Hampshire may soon have a similar measure in a practical working form.

I have tried throughout the year to uphold the spirit of organized medicine, and again I appeal to you as individuals to take an active interest in the work of your county society. It has been well demonstrated in the past sixty-seven years that "In Union there is Strength", and there is no surer treatment for the ills of The New Hampshire Medical Society than a closer endeavor by its members to hold together in an earnest effort to support one another, always with the thought of helping themselves by a willingness to do some good for the other fellow. Doctors are always influenced by a sense of charity toward their patients and toward the public; I beg you to let this charity extend even farther by having always a fraternal feeling for your fellow practitioner.

MYIASIS DERMATOSA*

BY H. C. SANDERS, JR., M.D.†

ALTHOUGH myiasis dermatosa is rarely seen in this State a patient suffering from it came under my care in June, 1922. The patient was a female infant, three months old. The left side of her neck was covered with inflamed pustules and on the back of the head and neck were eight or ten inflamed papules. The pustules were about one quarter of an inch in diameter. The parents said that a worm had crawled out of the sores and that they had seen a worm moving in another sore. Four living larvae were removed from as many pustules. These larvae were one eighth of an inch long and white in color. The application of a five per cent. solution of thymol in alcohol caused the remaining larvae to crawl out of the pustules or killed them. The sores healed rapidly. The infant had slept out of doors in the evening while the parents were working in their garden.

The larvae were sent to the Bureau of Entomology at Washington, D. C., and were identified by Dr. J. M. Aldrich of the Bureau as the larvae of a fly, Wohlfahrtia vigil. This fly according to Dr. Aldrich has a decidedly northern distribution, not having been found further south than central New York and occurring from Nova Scotia to Alaska. There is a closely allied European species Wohlfahrtia magnifica, which attacks human beings occasionally, although the larvae generally are found in domestic animals.

Dr. E. M. Walker of Toronto has reported three similar cases of myiasis dermatosa in the *Journal of Parasitology* Vol. VII, 1920, and Vol. IX, 1922. Two of his cases occurred in June 1919 and the other in 1922. The patients were all infants, the oldest was five months old. The lesions varied from one to two and one half centimeters in diameter and each had a round or elliptical opening three millimeters in diameter. The larvae varied in length from two and one half millimeters to fifteen millimeters. Dr. Walker placed eight or nine of the larvae on raw beef in an incubator and on the following day they had greatly increased in size. In four weeks they had turned into soft looking pale gray flies. They proved to be Wohlfahrtia vigil (Walker). The female adults measured eleven millimeters in length and the male thirteen millimeters.

*Read at the Annual Meeting at Manchester, May, 1928.

†For record and address of author see "This Week's Issue," page 45.

Discussion

Dr. Morris Fishbein, Chicago: I didn't come to discuss this paper but I believe that in the last five years the *Journal of the American Medical Association* has published two papers on myiasis, both of them having to do with cases affecting the external ear in which the fly deposited eggs in the external ear, and the condition was recognized after development, as it was in the present case.

It seems to me the doctor is to be congratulated in following through the investigation in the way he did. Much of our best work in periodicals is in case reports by practitioners who have followed cases through, getting the aid of Government Bureaus in making the complete investigation. As I travel about in many different states I am quite sure that every physician sees these cases. But the usual manner is to paint on some iodine or mercurochrome or soap and water and not to take the trouble to follow the case up or to read about it.

The American Medical Association has established a package library service so that any physician who wants to read up on any subject may send the sum of 25 cents, and reprints will be sent to him so that he can read up on the subject in his home; and the Service has grown, and we have sent out about 1,500 packages to physicians in small towns during the past year.

I believe Dr. Sanders is to be congratulated in following through an unusual case in the way he did.

Births and deaths (exclusive of stillbirths), with rates per 1,000 estimated population, and infant mortality, in New Hampshire, 1927

Area	Number--1927			Rate per 1,000 estimated population				Infant mortality (deaths under 1 year per 1,000 births)	
	Births	Deaths		Births		Deaths			
		All ages	Under 1 year	1927	1926	1927	1926	1927	1926
	8,776	6,295	593	19.3	19.2	13.8	14.8	67.6	78.7

Case Records
of the
Massachusetts General Hospital

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICO-PATHOLOGICAL EXERCISES

EDITED BY R. C. CABOT, M.D.

F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 14201

AN ACUTE INFECTION WITH PULMONARY EDEMA

MEDICAL DEPARTMENT

An American schoolgirl twelve years old was brought to the Emergency Ward October 22 in extreme prostration. The history was given by her parents, who were strikingly unable to answer any questions leading to a diagnosis.

Since October 17 she had not felt well, and on October 19 she stopped school. Her only complaints during the illness were lassitude, slight morning cough, loss of appetite and mild pain between the shoulders. She was thought to have been feverish for two or three days. October 21 it was noticed that her breathing was labored and rattling and that she was becoming cyanotic. That night the physician said her temperature was about 102°.

There was no history of operation, sinus, throat or dental symptoms, foreign body aspiration, marked headache, vomiting, mental disturbance, chills, sweats, hemoptysis, bleeding, severe pain or sore joints.

Physical examination was cursory because of her condition. It showed a cyanotic girl in semistupor, with prolonged expiratory rattle and irregular inspiratory gasps with clicking of the teeth. The throat was negative except for frothy exudate through which she breathed. There was no membrane. There was no tenderness over the sinuses. The chest was resonant throughout. The breath sounds were obscured by loud coarse moist râles of extreme pulmonary edema. Tactile fremitus and whispered and spoken voice were not elicited. The heart was negative except for a rate of 160 to 180. The pulse at first was of fair quality, better than her appearance indicated. The abdomen and extremities were negative except for cyanosis.

The temperature and respiratory rate are not recorded.

She was put upon the dangerous list immediately, and was given atropin, nitroglycerin, adrenalin, caffein and digitalis. Venesection was attempted. In less than three hours she died.

DISCUSSION

BY RICHARD C. CABOT, M.D.

NOTES ON THE HISTORY

You see they are very suspicious of these parents.

As I go back over a good many years of trying to guess at diagnoses here one of the things that I am clearest about is that we are very apt to go wrong if we do not get a good history. We go wrong on lack of good history more often than we do on lacks in the physical examination. If I had to choose between the two I would take the history every time. So we start out with poor courage for our diagnosis.

"Her only complaints during the illness were lassitude, slight morning cough, loss of appetite and mild pain between the shoulders." In other words the evidences of an infection, perhaps respiratory.

"October 21 it was noticed that her breathing was labored and rattling and that she was becoming cyanotic." That makes us think of pneumonia.

They are trying to exclude septicemia, meningitis, foreign body in the lung, miliary tuberculosis and acute septicemia from the streptococcus. But with that history I do not see how we can exclude any of them.

NOTES ON THE PHYSICAL EXAMINATION

"Physical examination was cursory because of her condition." I like to see a record like that. I have seen people I believe hurried into a better world by a thorough physical examination, people who were so sick that they ought to have been let alone. I think we are more careful about that. There was a time when the house officers thought they had to make a complete physical examination no matter what the condition was, so that they could show the visiting physician something the next day.

This is the description of a moribund patient, irregularity of breathing and spasmodic movements of the jaws. Moribund from what? We cannot say. I might digress here a moment to speak of an experience of mine. Years ago I was teaching physical diagnosis in the wards. I took the group to the bedside of a man with a history something like this. I pointed out one symptom which I warned them always meant death. That was the so-called "sternomastoid breathing," when the chin goes up with each inspiration. We stood around him a while and they admired my experience and skill. Two days later I met the same group again and the patient was sitting up. He got entirely well. I think most people would have made the same mistake that I did, though perhaps they would not have rubbed it in so much as I did and so would not have looked quite so foolish in the end. And I will say now that nine hundred

and ninety-nine out of a thousand who have sternomastoid breathing will shortly die; but he did not.

"The throat was negative except for frothy exudate through which she breathed." That means again simply that she is so weak that she cannot clear her throat. It does not point to any particular disease, merely extreme weakness.

You see they are examining those sinuses very carefully because they are thinking of meningitis starting in a sinus infection.

We have nothing to indicate infection but that temperature the night before which we know was 102°.

DIFFERENTIAL DIAGNOSIS

We must assume that we got somewhere near the truth on the history, that is, that she has not been sick in bed for a long time. We cannot attempt any diagnosis without some assumptions. I should say, secondly, we had better believe that it is an infection. Third, the one sign that we are clear about is cyanosis. So presumably it is a respiratory infection or an infection along with respiratory difficulty.

We must think of pneumonia first. You wonder perhaps how you could have a pneumonia with such a chest as that. You could not if it had been thoroughly examined, including an X-ray, which of course it was not right to do considering the condition. But as it is I do not see how we can rule out pneumonia. Second, miliary tuberculosis. Miliary tuberculosis almost never gives any more cyanosis than this. Even if we had had a thorough examination it very probably would not have shown any more than this showed.

Could this be a heart disease with cyanosis secondary to that? Not if the history is true. No one ever dies of heart disease in five days at her age, so far as I know. Of course an old person could die in a few days or a few months from cardiac infarct or rupture of the heart. But you do not have those things at this age.

We have no blood or urine examinations at all. Could it have been any disease of the blood? An acute leukemia? Even in the acute leukemias we usually have something more in the way of physical signs than this, hemorrhage, anemia, a palpable spleen, or glands. Leukemia is not probable, though not impossible, because we have no blood examination.

Acute uremia? I should say no, on account of the shortness of the history and the age. Acute uremia occurs sometimes in an old person. But not with this history and in a young person.

Could this be a thymus death? A death associated with an enlarged thymus, status lymphaticus? I do not know enough to say no. That is among the possibilities, as far as I know. I do not know very much about that disease. But the cases I have seen have had some slight attacks before the final fatal one.

Of course we can only speculate about the possibilities of poisoning, accidental or criminal. We are suspicious about these parents; but I do not see any use in letting our minds wander in that direction. Methemoglobinemia I have seen give a picture a little like this, but with a more distinct brownish tinge in the cyanosis.

Can this be meningitis? I should say it is improbable because of the absence of stiff neck and Kernig. They are both easy things to see and certainly would have been reported if they had been there. I do not believe it is meningitis unless that type of meningitis which forms part of a miliary tuberculosis.

Miliary tuberculosis and pneumonia I think are the most probable diagnoses. Thymus death I should say comes next. But the best bet of all is something we have not thought of at all. In the old days when I used to discuss cases with Dr. Maurice Richardson and others, we used each to say what we thought the diagnosis was and then Dr. Richardson would say, "Well, I will take the field against all of you." He would bet it was some thing other than anything we had named, and he was very apt to come out right. I think I would "take the field" if I were allowed to here.

A STUDENT: How about influenza?

DR. CABOT: Influenza pneumonia? I did not try to distinguish between the different types of pneumonia. I meant to include influenza pneumonia along with the rest.

A STUDENT: What about poisoning with acute nephritis as a result?

DR. CABOT: That gets us into the region of speculation. I do not see how it can be excluded. But most cases that I have seen have had edema, convulsions, and some history of abnormalities in the urine noticed by the parents. I think I feel safer in saying this probably is not that than in most of the things I have been saying.

A STUDENT: How about paralysis of the bulbar type?

DR. CABOT: I have never known it to cause such cyanosis in the absence of any known paralysis. But we are not told that the breathing seemed obstructed in that way. I may be wrong, but it would not have occurred to me to think of that.

A STUDENT: How about acute passive congestion?

DR. CABOT: Of the lungs? That usually means pneumonia.

A STUDENT: I mean due to a weak heart.

DR. CABOT: I do not know of anybody's ever getting a weak heart in five days at this age. I do not believe the trouble is in the heart.

A STUDENT: Could it have been a diphtheria and an infection in the lower bronchi?

DR. CABOT: That is a good point. I forgot that,—laryngeal diphtheria, not visible on inspection of the fauces, but causing suffocation. I have seen very little diphtheria in my clinical

life and I am uncertain about it. But I do not see how it can be excluded.

A STUDENT: Could not the resonant chest be accounted for by acute emphysema?

DR. CABOT: That is right enough as long as you do not expect anything to be found to show for it post mortem. That certainly happens in pneumonia.

A STUDENT: Could she have enlarged bronchial glands?

DR. CABOT: I had not thought of that—sudden blocking of the trachea or bronchi from enlarged bronchial glands. But the cases I have known have given more definite local symptoms.

A STUDENT: How about acute hydrocephalus?

DR. CABOT: That is of course a part of meningitis. I think we should have to have more brain symptoms and more meningeal symptoms than are written down here.

A STUDENT: Does not acute pulmonary edema occur without any known etiology?

DR. CABOT: Yes, in chronic nephritis and arteriosclerotic cases in old people. But I have never known a case without a chronic background of that sort.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Pulmonary edema, cause unknown.
Pneumonia?

DR. RICHARD C. CABOT'S DIAGNOSIS

Pneumonia? or
Miliary tuberculosis? or
Possibly status lymphaticus?

ANATOMIC DIAGNOSES

1. *Primary disease.*

Acute anterior poliomyelitis.

2. *Secondary or terminal lesions.*

Bronchopneumonia, hemolytic streptococcus.
Toxic necrosis of Malpighian corpuscles.

DR. TRACY B. MALLORY: The most noticeable feature about this case post-mortem was a tremendous edema of the lungs,—acute congestion and edema. That was so marked that in gross it was very difficult to make out much more. There was, however, a marked bronchitis with hemorrhages in the mucosa of even the smallest bronchioles. Smears from the bronchi and also from the lung tissue itself showed pneumococci and hemolytic streptococci in considerable numbers. This picture so far is fairly characteristic of an influenzal type of bronchopneumonia. We were not able, however, to find any influenza bacilli in our smears or cultures.

Gross examination of the other organs failed to help us further. The thymus was large, weighing 25 grams, which is close to the upper limit of normal or perhaps slightly above. The girl had other evidence of endocrine abnormalities in that, though only twelve years old, the secondary sexual characteristics were developed to a point suggesting fifteen or sixteen.

The brain and spinal cord were removed but presented nothing remarkable in gross.

Microscopic examination showed a very acute bronchitis and bronchopneumonia and also well marked toxic necrosis of the Malpighian corpuscles of the spleen. This is by no means an impossible finding in hemolytic streptococcus septicemia, but is nevertheless relatively uncommon. It is moreover an almost invariable finding in anterior poliomyelitis. Sections of the spinal cord definitely proved the presence of the latter, well marked necrosis of nerve cells and the typical perivascular infiltration of lymphocytes being present.

DR. CABOT: The finding of acute anterior poliomyelitis is of course a complete surprise. Looking back over the record as we have it I see nothing on which we could have built up any such diagnosis or even a suspicion of it. It is of especial interest to me that even after five days of an illness which in all probability must have included poliomyelitis from the very start no evidences of paralysis were detected.

Was there a great deal of blood in the lungs and the bronchi?

DR. MALLORY: All through them. We were not able to find influenza bacilli.

DR. CABOT: That is what you expect, isn't it, in influenza pneumonia?

DR. MALLORY: Yes, very often.

DR. CABOT: The heart showed nothing?

DR. MALLORY: Everything else was entirely negative.

CASE 14202

TWO CASES ILLUSTRATING THE COMPLEXITY OF THE ASTHMA PROBLEM

ANAPHYLAXIS CLINIC OF THE MEDICAL DEPARTMENT

DISCUSSION BY DONALD S. KING, M.D.

I

The first case is an American writer of thirty-three years. At the age of twelve he began to have hay fever each year, starting about the fifteenth of August and continuing until frost. Within three years he had developed asthma, which was always associated with the hay fever. Two years after the onset of the hay fever he noticed that he developed asthma whenever he was near cats. These asthmatic attacks were often severe and lasted about one week. The wheezing was usually worse at night, keeping him from sleep.

At the age of twenty he had lobar pneumonia, with a second attack at the age twenty-one. Following the second attack there was persistent cough with the expectoration of large amounts of thick yellow sputum. This was particularly true in the morning, when about one-third of a

cup of such sputum was expectorated. The sputum was never really foul and there was no blood. Postural drainage helped to get rid of the cough and sputum early in the morning so that the patient was not troubled much during the day. In addition to the chronic cough, there had been periods of fever and chills about once a year with symptoms resembling pneumonia, but without definite lung signs of consolidation. During most of the year physical examination shows dullness in the left base with a few medium moist râles. Except at one time when a small amount of bronchopneumonia was present, there has been no bronchial breathing.

Cultures have been made from the sputum at various times showing always streptococcus, usually of the viridans type, with greenish colonies. There have, however, been some hemolytic streptococci present. At no time has there been a good growth of influenza bacilli obtained. The sputum has not been examined for the presence of spirochetes or fusiform bacilli.

X-rays taken of the chest have shown definitely dilated bronchi on the left with increased density in the hilus and general thickening about the bronchi throughout the left base, with moderate increase in density in the right base. The X-ray gave no definite evidence of abscess in the lung. Plates taken two years after the original examination seemed to show definite decrease in the density about the bronchioles.

No bronchoscopy has been done and no X-ray plates have been taken after lipiodol injection.

In addition to the infection in and about the bronchi this patient has had a definite infection in both antra. An operation was first done in which free drainage was obtained through the nose, and for three years the patient washed out the antra every morning with a syringe which he himself had learned to use. At the end of this time the symptoms in the antra had become sufficiently annoying to make it seem advisable to do a radical operation on both antra. This was done with definite relief of local symptoms.

For a number of years attention had been so definitely focused upon the lungs that no one had noticed a definite mitral stenosis which was present. The heart is not enlarged by physical examination or X-ray, but at the apex there is a late rumbling diastolic murmur running up into the first sound with an accentuated first sound and definitely accentuated pulmonic second sound. There is no history of rheumatic fever or chorea. The patient had had a few attacks of tonsillitis which had not been considered severe.

Skin tests made at various times showed, as one would expect, definite sensitization to ragweed pollen as well as to practically all the common animal substances, namely cat hair, dog hair, horse dander, chicken feathers and goose feathers. Clinically, however, no asthma developed except in the presence of pollens and cats.

Injections of ragweed pollen have definitely diminished the hay fever symptoms and the accompanying asthma, though during September there has been slight asthma if the patient has been in the country. The patient has learned to avoid cats, but is still somewhat embarrassed when he goes to the houses of friends who have cats, since he immediately starts to have trouble. Many injections of solutions made from cat hair have reduced his sensitiveness in this direction, but have not yet entirely cured the trouble. Autogenous vaccines made from the green streptococci and hemolytic streptococci grown from his own sputum have somewhat reduced the cough and sputum, but it is difficult to say just how much benefit he has obtained from them. The patient himself feels that his cough has been helped very much more by the oral administration of digitalis than in any other way. He believes that this has been more of a factor than vaccine injections or any other form of treatment. After a preliminary digitalization, he has taken three one and a half grain tablets of digitalis each week. He still continues his postural drainage with definite benefit but not cure.

This patient is particularly interesting because, as will be seen, he combines most of the factors which are commonly regarded as etiological in a case of asthma, namely: (1) sensitization to extrinsic factors, in this case ragweed, pollen and cat hair; (2) definite chronic antral infection; (3) definite bronchial infection of the suppurative type commonly diagnosed as bronchiectasis; (4) definite circulatory disturbances in the nature of a true mitral stenosis.

Men who feel that asthma is in every case caused by extrinsic factors could well point to this case as an argument for their position, since here are shown both sensitivity to extrinsic inhalants and definite intrinsic infection with asthma coming on only on exposure to the extrinsic factor.

II

The second case need not be described in such detail, but is given for the sake of comparison with the previous case, with which it has many points of similarity.

This case is a man of fifty who has been sensitive to ragweed pollen and horse dander practically all his life. Beside this, he too has a recurrent sinus infection and as a young man developed "winter bronchitis", which has of late years come to the point where it could rightly be called chronic bronchopulmonary suppuration or bronchiectasis. X-rays of the chest do not show a definite dilatation of the bronchi, as is true in the previous case, though definite basal changes are apparent.

This patient does develop asthma in the presence of horses or ragweed pollen. However, he is able to avoid both these substances, and for

many years has never had attacks of asthma which can be definitely traced to such exposure.

He differs from the first case in that his attacks of asthma come on now only in association with infection in the respiratory tract. This may be either in the form of an acute infection in the sinuses or an acute exacerbation of his chronic bronchial infection. This means that he is troubled with asthma of greater or less severity through most of the winter months.

Cultures of the sputum have been interesting in that they usually give an almost pure culture of one organism, though this varies definitely at different times in the year; sometimes the culture is of influenza bacilli, then a number of successive cultures will show a definite Type III pneumococcus.

Vaccines made from these two organisms have given this patient marked relief. He feels that the cough and expectoration during the winter are relieved to a great extent by vaccine administration.

Clinically the contrast in these two cases is striking in that the first case can have many flare-ups of infection in his respiratory tract with no symptoms of asthma, whereas in the second case, which is likewise a sensitive one, respiratory infection is practically always associated with asthma.

It should be noted that in a case like the second one the upholders of the extrinsic theory have said that the respiratory infection may not be the true etiological factor, but that the infection has simply made the mucous membranes permeable to some as yet unknown extrinsic factor or to some factor present in the air in such small amounts that it will not give symptoms if it lodges on normal mucous membrane.

SUMMARY

These two cases are cited not because they in any way clear up the asthma problem, but to show the difficulties in determining the definite etiological factor and the importance of further research into the group of cases which now fall into the classification of "bacterial asthma". Up to the present time no skin tests have been devised which in these cases definitely show sensitization to bacterial protein or the products of bacterial growth in such a way as to prove them definite allergic factors.

DIAGNOSIS

Bronchial asthma.

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INFLUENCE OF SOLAR RADIATION ON THE PARATHYROID GLANDS

Science, on May 25, contains a brief account of an interesting experiment on the parathyroid glands conducted by George M. Higgins and Charles Sheard of the Mayo Clinic and Foundation.

Since it is known that hyperplasia of the parathyroid glands occurs in animals kept on a diet deficient in calcium, and since calcium metabolism is dependent on vitamin D and upon the lesser wave lengths of sunlight, an experiment was devised to determine the effect of varying wavelengths on the parathyroid glands of chicks maintained upon a diet with an adequate calcium content.

The chicks used for the experiment were kept in pens screened respectively with amber, blue, ordinary and vitaglass from April until October, 1927. Half of the chicks in each pen had cod-liver oil added to their diets; the other half had none. After two, three, four, eight, and twelve weeks chicks from each pen were killed and their thyroids and parathyroids studied histologically.

After three weeks a differential growth was noted; the glands of those chicks grown under blue and amber glass on a diet lacking cod-liver oil were hyperplastic. The glands of those chicks kept under these filters and fed the oil were smaller than those of the chicks who did not receive the oil, but were larger than those of the chicks grown in the compartments screened with vitaglass or ordinary window glass. Chickens, in fact, taken from the compartments screened with blue or amber filters and maintained on a diet without the oil had parathyroids at the end of one month nine times as large as the glands of those chicks grown under vitaglass on the same diet.

These experiments, the authors conclude, indicate that normal development of the parathyroids will best maintain in the presence of both the lesser and the greater wave-lengths of sunlight.

THE PARTING OF THE WAYS

LESS than a hundred years ago Florence Nightingale undertook the nursing of the wounded on the battlefields of Crimea; less than seventy-five years ago the first school of nursing in this country was established at the New England Hospital for Women and Children. The nursing profession has come a long way since those early days. New fields have opened up for it. To its primary task of private duty in caring for the sick have been added administrative and teaching opportunities, community work, public health work, school work and industrial activities. Nursing has made a place for itself in the scheme of things that must be kept permanently filled.

As was pointed out at the recent nursing convention in Lousiville, however, a paradox exists in the relation of the private duty nurse to the community. Her wage of six or eight dollars a day is more than many people can afford to pay, and yet, due to the fact that she is paid by the day and that there are many days of idleness, her average income is only $1,311 a year.

The cost of medical care has become such a serious problem that a nation-wide committee is at work trying to find a solution for it, and intricately bound up with this problem; in fact, a fundamental part of it, is the cost of nursing care. The average physician is but indifferently well compensated for his services, and yet the average family cannot afford sickness; the average nurse receives an income too small to be consistent with her training and her type of work, and yet the average family cannot afford to employ her.

It is part of the new program to organize service on the basis of the patient's needs rather than on the twelve-hour day, and obviously such an arrangement requires definite organization and centralized administration. Increasing of salaries is a short-sighted way to improve nursing service; the public cannot pay the toll. An increased number of partly trained and less well paid attendant nurses will be of help from the

point of view of the public, but it will not help to keep at its present high level the quality of nursing service. The part time nurse, such as we are beginning to have available through community nursing service may be the solution of the problem, and the results of this organization will be watched with interest.

It is the belief of the committee on the grading of nursing schools of the American Nurses' Association that nursing is a public responsibility and the cost of nursing education should be borne by the community, and, like medicine and law, should be taught in college. Others believe that the standard of education for nursing may be set so high that the nurse who is wiling to do private duty will be left out of the picture. These questions are not yet answered. They are in process of being solved, and no one has a more vital interest in them than the public.

MR. HOROVITZ ON THE WORKMEN'S COMPENSATION ACT

Most doctors in industrial centers have had experiences, not always pleasant, with the problems arising from the Workmen's Compensation Act. Perhaps the surgeon who has been called upon to render first aid or the specialist who has been asked to render a decision as to the relationship existing between the patient's occupation and the alleged cause of his disability has done his work honestly and carefully, and has rendered a bill for his services. Not infrequently his professional pride has been lacerated and his pocket book has been depleted by what he considers an entirely inadequate fee. Ignorant of the workings of the Act, and inexperienced in the details of its administration, these men have resented the apparent slur upon their professional standing, and have vowed to have nothing to do in the future with any such case.

Because of this lack of sympathy between many doctors and the Industrial Accident Board the Journal has considered itself fortunate in being able to publish so clear an exposition of the modus operandi of the Act as is the article by Mr. Horovitz in this issue. The writer is a member of the Boston Legal Aid Society and has had years of experience in dealing with the problems connected with the Workmen's Compensation Act.

In his article upon this subject, Mr. Horovitz reviews the evolution of the Act from its inception to its present form. He outlines the rights of the employee and of the physician, and tells the latter what he may and may not do. We regard this article as one of great practical value, and urge every doctor who has any interest in this question to read it and lay it aside for reference.

THIS WEEK'S ISSUE

Contains articles by the following named authors:

Graham, Evarts A. A.B., Sc.D., M.S., M.D. Rush Medical College, 1907. F.A.C.S. Professor of Surgery, Washington University; Surgeon-in-Chief, Barnes Hospital and St. Louis Children's Hospital; Member of National Research Council; Member of National Board of Medical Examiners; Co-Editor, *Archives of Surgery;* Editor, *American Year Book of Surgery.* His subject is: "Some Functional Tests and Their Significance". Page 1. Address: Washington University, School of Medicine, St. Louis, Mo.

Sever, James W. M.D. Harvard, 1901. F.A.C.S. Assistant Orthopedic Surgeon, Children's Hospital, Boston; Instructor in Orthopedic Surgery, Harvard Medical School; Orthopedic Surgeon, Cambridge Hospital, Cambridge, Mass.; Orthopedic Surgeon, Waltham Hospital, Waltham, Mass.; Orthopedic Surgeon to the Massachusetts State Hospital School for Cripples, Canton, Mass.; Orthopedic Surgeon to the Industrial School for Crippled and Deformed Children, Boston; Consulting Orthopedic Surgeon to the General Stephen Gale Hospital, Haverhill, Mass.; Member of the American Orthopedic Association. His subject is: "Fractures of the Pelvis". Page 16. Address: 321 Dartmouth Street, Boston.

Horovitz, Samuel B. A.B., LL.B., Staff Member in Charge of Workmen's Compensation Cases, at the Boston Legal Aid Society. His subject is: "Doctors, Dollars and the Workmen's Compensation Act". Page 31. Address: 16A Ashburton Place, Boston.

Fitch, Emery M. M.D., Dartmouth, 1905. F.A.C.S. Surgeon, Claremont General Hospital. His subject is: "President's Address". Page 35. Address: Claremont, N. H.

Sanders, H. C., Jr. A.B., M.D. University of Pennsylvania, 1899. His subject is: "Myiasis Dermatosa". Page 38. Address: Claremont, N. H.

THE DOCTOR'S SADDLE BAG

The Cost of Medical Care

There is an opinion current among many of the so-called laity that the doctor is overpaid —or at least that he charges too highly for his services and certainly is often not worthy of his hire. The cost of his education, his overhead charges, his unpaid bills and the services which he otherwise renders free of charge in a more premeditated fashion are not taken into account. The fact that his work requires a high order of intelligence and a superlative degree of education, frequently incomparably greater than that of the most successful business man, and that he is justified in expecting thereby at least a comfortable living are rarely considered. The fact is that his services are generally unexpected, no material or pleasurable return accrues to the patient equal to the same amount of money spent on theatre tickets or radio tubes, and consequently his bills are frequently grudgingly received and tardily settled.

I remember in the early days of my novitiate in practice being called to see a patient of the commonly considered weaker sex, who, having come from the country, was taken ill in the city. With the fortitude inspired by sunlight she suffered in silence through the long day, but when the gloom of night had lain upon her for some hours she felt irresistibly urged to seek what consolation she could from the visit of a physician. The visit consumed an hour, and when the modest fee of five dollars was charged, she rallied sufficiently to make slurring remarks about the Boston doctors who rode in Packards at the expense of the unfortunate sick. This is, perhaps, an extreme case, but on the other hand there are those who raise no objection to the size of their bills because they do not intend to pay them.

Like all problems, that concerning the cost of medical care has two sides. I believe that most doctors, considering their education and the amount of hard work and unpaid work that they do, receive an insufficient net income. I do not refer now to those occasional artists of the oral cavity who are willing to receive $500 for a tonsil—$1,000 for a pair. I refer to the run of practicing physicians. On the other hand the cost of sickness is largely more than the average patient can bear. This application is not limited to medical attention pure and simple, but to all the accessory expenses which go with it—drugs, nurses, hospitalization and loss of income. The shoe pinches not only because it is too small, but also because the foot is too large.

The problem is recognized as a serious one, and it is being seriously considered at last from an organized standpoint, for recently there has been formed a representative committee on the cost of medical care which is now embarking on a five year program to study, as exhaustively as may be, all angles of the numerous questions which are involved. It is not a one-sided committee; it is not attempting to formulate methods for securing cheaper medical attention at the expense of the profession, nor is it a cabal of physicians trying to find new ways of hijacking the unfortunate public. Of forty-two members, twenty-three only are Doctors of Medicine, and in all it comprises fourteen private practitioners; six representatives of the field of public health; eight representatives of various institutions and organizations; five eminent economists, and nine representatives of the general public. It is headed by Ray Lyman Wilbur, President of Leland Stanford University, and incidentally a physician.

At the same time, in the field of nursing, studies are being made by the Committee on the Grading of Nursing Schools, for here, as part of the general problem, it is obvious that many families cannot afford to pay six or eight dollars a day for nurses, and yet, from the point of view of the private duty nurses, considering the days of idleness, the average annual wage of a little over a thousand dollars is distinctly an inadequate return for her training and the skilled type of work which she performs.

A number of studies; seventeen to be exact, are planned by the Committee on the Cost of Medical Care for its five year program, and these seventeen studies are divided into three general groups, the first being a preliminary survey of data showing the incidence of disease and disability requiring medical services and of generally existing facilities for dealing with them; the second, studies of the cost to the family of medical services and the return accruing to the physician and other agents furnishing such services; the third, the analysis of specially organized facilities for medical care now serving particular groups of the population.

It is easy to say that the rainy day should be provided for; that the possibility of sickness should be foreseen and prepared against. Let those who have tried it tell how, out of a family income of $1,550 (sufficient to furnish "decency, health and reasonable comfort" for a family of four) a $500 illness is to be provided for. It is beyond the economic ability of the average householder to do it. For others, weak mortals that they are; and human nature is in its essence frail, the new Ford in the dealer's window is more persuasive in its arguments and speaks more eloquently than do the harpies who harp on pneumonia in a distant winter time.

There are no two ways about it. The average family breadwinner, under existing conditions, cannot afford sickness or operations or accidents or new babies or having the children shorn of their tonsils. His ship of state is generally loaded to the gunwales with decks awash, and any extra load will sink it. An additional appropriation for appendicitis, an acute gall bladder or a touch of meningitis might just as well equal the national debt.

The system is wrong, and the doctors are scrambling with their patients for preferred positions at the bottom of the heap. What the answer will be no one can tell, but it may be that the five year program will at least point a way which might be followed. Perhaps it will be in the nature of pay clinics or health insurance or, perish the thought! state medicine. One thing is certain. Much of the world's illness is preventable, and the doctor who would continue to be on a basis of economic independence is he who will read the writing on the wall and attune his practice to the note of preventive medicine, for the average person will more gladly pay for health, and plan for it, than for an unexpected and undesired illness.

BOSTON MEDICAL LIBRARY

Early New England in Medicine

AMOS TWITCHELL

The old New England stock, who, struggling with the rigors of a harsh climate, with opposition from the native population and the difficulties of procuring a living off a non-agricultural country surmounted all these difficulties and contributed, later on, the very same qualities which made this possible to their descendants who extended the frontiers of civilization in America. It contributed also, to medicine numerous examples of the same rugged character which have been spread over the intervening years among their illustrious descendants. It can do us no harm, in fact it ought to do us much good, to pass in review some of these worthies in whom sterling character had to supply certain of the defects incident to lack of knowledge and opportunity to study. The "North Country", as that part of New England is even now called, which lies above a line drawn across Vermont and New Hampshire just below the level of the foot hills of the White Mountains, has generally had some outstanding physician whose opinion and skill had been sought by those, wherever located in that territory, when in dire need. Dr. Amos Twitchell was one of these whose fame was wide-spread throughout that region. He was born on a farm in Dublin, N. H., in 1781, and though his father had hoped for the aid of this son on the farm and in the conduct of a Grist mill which he ran, he was wise enough not to thwart the boy's desire to obtain a college education. It was intimated that he was led to this conclusion by the boy's own actions, who, when left in charge of the mill and becoming interested in a book he was reading, forgot about the grist he was grinding thereby spoiling the mill stones. Other similar experiences convinced his father that it would be less expensive to send him to college. Harvard refused his admission on account of his falling short of their prescribed requirements in consequence of which Dartmouth profited by his matriculation and he was graduated from there in 1802. He was then taken on as a pupil in the study of medicine by Dr. Nathan Smith who was later to become the founder of the medical department of Dartmouth College. With him he remained two years after which he started practice in Norwich, Vermont, where he remained until 1810. From here he removed to Keene, New Hampshire, where he felt that the opportunities for doing surgery were greater than at some other places to which he had been called. For forty years he did the major portion of the surgery of the "North Country". His practice was extensive and the distances he travelled were, for the time, very great.

That he did many operations which, for him, were original, and of the slightly earlier or contemporary performance of which, by other surgeons in other parts of the world, he could have had no knowledge, there is abundant evidence. He had trephined the long bones to evacuate pus sometimes before he had any knowledge of Sir James Brodies' work along this line and his successful ligature of the common carotid, when its wall had been eroded by a fragment of bone, was certainly as bold a surgical procedure, undertaken as an emergency in a farm house in New Hampshire, assisted solely by the patient's mother while with one hand only free to pass and tie the ligature, (the other being engaged in compressing the artery) as that of Abernethy or Cooper who about the same time were credited with having done the same thing. Many other citations from his surgery might be made, illustrative of the same characteristics which made the early New Englanders conspicuous for overcoming the difficulties with which they were confronted. His ideals were high; his adherence to and advocacy of them was uncompromising and outspoken, and anything bordering on Quackery or deception met his unquivocal condemnation. Dr. Henry I. Bowditch published, in 1851, a short biographical sketch of him and the Library has recently come into possession of the original manuscripts of some of his writing among which is the description of the ligature of the common carotid.

From time to time the outstanding characters in medical practice in New England will be briefly sketched in this column and any books or manuscripts there may be in the Library to illustrate will be exhibited. Such material as we have pertaining to the subject of this sketch will be put out in Holmes Hall during the week of July 9th.

MISCELLANY

DR. D'HERELLE BECOMES A MEMBER OF THE FACULTY OF YALE MEDICAL SCHOOL

Yale University is to be congratulated in securing Dr. F. D'Herelle of Paris who has accepted the appointment of Professor of Bacteriology in the Medical School.

Dr. D'Herelle brings to this position the benefits

of an extended experience, having studied bacteriology in many parts of the world.

The University of Leyden conferred the degree of M.D. honores which is an unusual distinction and is conferred on only a few persons in each century. Dr. D'Herelle is the only living holder of this degree.

Dr. D'Herelle was born in Montreal, moved early in life to France where he was educated. He was bacteriologist to the Government of Guatemala from 1901 to 1905. Following this service he was employed by the Mexican Government in Yucatan where he conducted studies in insect diseases and first observed bacteriophage phenomena. After leaving Yucatan he returned to Paris and between 1908 and 1914 was sent by the Pasteur Institute on various scientific missions.

During the World War he was in charge of the preparation of vaccines and in the French army. After the War he carried on his studies in Indo-China. His record includes much other scientific work. He will be given adequate quarters and equipment to prosecute his work in New Haven.

CHANGES OF ADDRESS

Dr. Joseph Garland, Dr. William B. Breed, Dr. Richard H. Miller, Dr. Horatio Rogers, Dr. Thomas H. Lanman and Dr. Roger I. Lee have moved their offices to 264 Beacon Street, Boston.

RÉSUMÉ OF COMMUNICABLE DISEASES IN MASSACHUSETTS
MAY, 1928

GENERAL PREVALENCE

The total number of cases of communicable diseases for May was not unusual.

More cases of lobar pneumonia were reported for May, 1928, than any previous May since the disease was made reportable. The incidence of influenza was also unusually high.

The reported incidence of diphtheria, measles, mumps, anterior poliomyelitis, scarlet fever, tuberculosis and whooping cough was within endemic limits.

The incidence of chicken-pox and German measles was low. Fewer cases of typhoid fever were reported than for any previous May in the history of the Department. The reported incidence was fifty per cent. lower than the previous low May record.

RARE DISEASES

Anterior poliomyelitis was reported from Lawrence, 1; Lynn, 2; Newton, 1; Northampton, 1; Sandwich, 1; Somerville, 1; Springfield, 1; total, 8.

Anthrax was reported from Lynn, 1; total, 1.

Dog-bite requiring anti-rabic treatment was reported from Acton, 3; Arlington, 1; Billerica, 1; Boston, 17; Braintree, 2; Chelmsford, 3; Chelsea, 1; Greenfield, 1; Holyoke, 1; Lowell, 18; Medford, 1; Millbury, 1; Milton, 1; Newton, 1; Revere, 4; Taunton, 1; Waltham, 1; Winthrop, 2; total, 60.

Dysentery was reported from Boston, 1; total, 1.

Encephalitis lethargica was reported from Boston, 1; Brockton, 1; Chicopee, 1; Hudson, 1; Lynn, 1; Salem, 1; Somerville, 1; total, 7.

Epidemic cerebrospinal meningitis was reported from Boston, 3; Chelmsford, 2; Greenfield, 1; Haverhill, 1; Lawrence, 1; Taunton, 1; total, 9.

Pellagra was reported from Boston, 1; total, 1.

Septic sore throat was reported from Beverly, 1; Boston, 8; Fall River, 1; Pelham, 1; Plymouth, 1; Marblehead, 1; Swampscott, 1; total, 14.

Tetanus was reported from Dighton, 1; Fitchburg, 1; total, 2.

Trachoma was reported from Boston, 3; total, 3.

Trichinosis was reported from Worcester, 1; total, 1.

Smallpox was reported from Boston, 4; Greenfield, 1; total, 5.

MONTHLY REPORT OF CERTAIN COMMUNICABLE DISEASES

Diseases	Cases in entire population				Case rates per 100,000 population		
	May, 1928	May, 1927	Prosodemic index	Epidemic index	May, 1928	May, 1927	Expected rate‡
All causes	10,143	8,616	—	—	234.5	201.8	—
Anterior poliomyelitis	8	7	8*	1.0†	.2	.2	.2
Diphtheria	315	336	374*	.8†	7.3	7.9	8.6
Measles	4,255	1,761	6,011*	.7†	98.4	41.2	139.0
Pneumonia, lobar	706	364	412*	1.7†	16.3	8.5	9.5
Scarlet fever	1,049	1,811	1,051*	1.0†	24.3	42.4	24.3
Tuberculosis, pulmonary	475	460	418*	1.1†	11.0	10.8	9.7
Typhoid fever	14	27	28*	.5†	.3	.6	.6
Whooping cough	726	474	979*	.7†	16.8	11.1	22.6
Chickenpox	553	954	—	—	12.8	22.3	—
German measles	81	80	—	—	1.9	1.9	—
Influenza	304	38	—	—	7.0	.9	—
Mumps	678	1,611	—	—	15.7	37.7	—
Tuberculosis, other forms	89	72	—	--	2.1	1.7	—

*This Index is an attempt to estimate the number of cases based on the trend during the past years which can be expected to occur, and is for the purpose of comparison with the number of cases which actually did occur.

†This ratio expresses how prevalent the disease is compared with the index mentioned above; 1.0 indicates that the actual number of cases equals the expected number. A larger number means a greater prevalence, and a smaller number a lesser prevalence than expected. Thus, 2.0 would indicate twice the expected number of cases, and .5 half the expected number of cases. The method used to determine the indices is described in the August 18, 1927, issue of the *Boston Medical and Surgical Journal*.

‡Calculated from the Prosodemic Index.

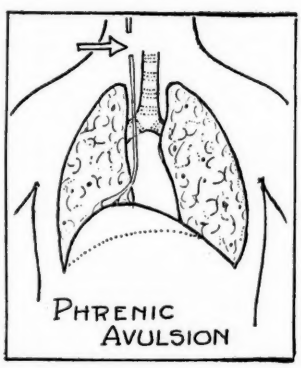
TUBERCULOSIS ABSTRACTS

General systemic rest is the foundation of the treatment of tuberculosis. Tuberculous lungs, like other diseased organs, heal best when at rest. Bed rest not only conserves the energy supply of the entire body but also lessens the activity of the lungs. Postural rest and the chest splint are valuable in that they reduce the work of the lung most affected. It has long been known that spontaneous pneumothorax often has a beneficent effect in tuberculosis, due to the enforced rest of the lung brought about by the pneumatic pressure. Pleural effusion, a common complication of pulmonary tuberculosis, also tends to compress or "splint" the lung, while pleural adhesions often serve to limit the motion of the diseased part. With these natural methods of inducing rest of the affected lung as a cue, surgical methods to secure partial or complete immobilization of the lung have been devised. Surgical procedures imitate the natural methods but are more precise and aim to avoid the disadvantages of spontaneous pneumothorax, pleuritic effusion and adhesions. Lung surgery and particularly artificial pneumothorax is proving its great value as an adjunct in the treatment of pulmonary tuberculosis.

SURGICAL REST IN PULMONARY TUBERCULOSIS

To be of value, surgery must be invoked before the patient's reserve is depleted. Surgery is not a substitute for, but a supplement to, the older methods of treatment. The several surgical procedures now employed are all based on the principle of compressing the diseased lung, thus limiting its motion, which reduces the absorption of toxic products, controls hemorrhage and favors repair.

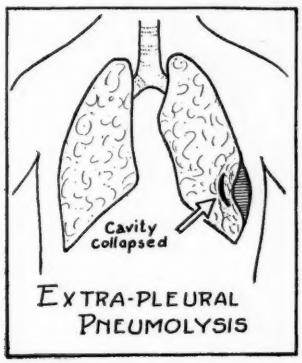
Phrenic Avulsion, or the extraction of at least four inches of the phrenic nerve through an incision at the base of the neck, may lead to striking improvement but rarely effects a cure. Phrenic avulsion secures localized rest by paralyzing the corresponding half of the diaphragm. This eliminates the piston-like action of the diaphragm and lessens its excursions. Unless held down by adhesions, the diaphragm domes upward and thus materially reduces the capacity of the corresponding half of the thorax.



Coughing is made easier and more productive; the amount of sputum diminishes and the lesions improve. Because of the stasis of blood and lymph within the lung and the lessened action, gas, air and fluids are less readily absorbed; hence, when phrenic avulsion is combined with artificial pneumothorax, the necessity for refills is less frequent.

Intrapleural Pneumolysis is the cutting by the electrocautery of thin, firm, isolated adhesions within the pleural space. It is indicated in exceptional cases with certain types of adhesions which interfere with complete or satisfactory collapse of the lung by artificial pneumothorax. The risks involved seldom warrant the operation in the present state of its technique.

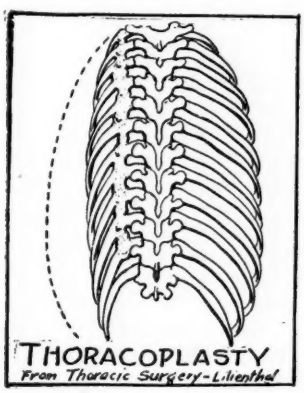
Extra-Pleural Pneumolysis is the localized direct compression of a diseased area or cavity by bluntly separating the two layers of the pleura through a small opening in the thoracic wall and filling the space with fat, muscle, gauze or plastic wax. While



it is theoretically a good procedure, the operation is uncertain and incomplete and has the danger of infection, ulceration, rupture of the cavity and hemorrhage.

Limited Thoracoplasty was devised originally for the obliteration of empyema cavities by resecting lateral segments of the ribs. The outward spring of the rib-ends, however, is unopposed when the rib is resected in the area of greatest convexity and the stumps serve as attachments for the auxiliary muscles, forming rigid buttresses which interfere rather than favor collapse of the thorax.

Total Thoracoplasty is the compression of the entire lung by resecting all, or nearly all, the ribs on one side as close to the spinal column as possible. The operation is indicated (a) when artificial pneumothorax is unsatisfactory because of adhesions; (b) when the lung fails to expand after pneumothorax treatment; (c) when lesions in the re-expanding lung become active and pneumothorax cannot be re-induced; (d) when large cavities with rigid walls or pleuritic adhesions make the ultimate prognosis doubtful; (e) when recurrent hemoptysis is not re-



lieved by other means; (f) when, for mechanical reasons, further progress is impossible; (g) when there are complications or conditions which justify desperate measures or which are not suited for less radical treatment.

The single stage total thoracoplasty is the ideal operation since the collapse is immediate, uniform and extensive, but the risk and post-operative dangers are so great that it is seldom justified. Two or more stages at short intervals of two or three weeks are much safer, especially when the resistance of the patient is low. The lower ribs are removed as a first stage to obviate the danger of aspiration infection and pneumonia in the lower lobe or in the other lung. An upper first stage may be safely performed when the lower lobe is controlled by partial artificial pneumothorax until post-operative compression and healing in the upper, more diseased area are advanced or complete, after which the lower lobe may be permitted to re-expand slowly. The number of ribs and the lengths or segments to be removed must be governed by the condition of the pleura, the size and extent of the empyema, the presence, size, rigidity and location of the intra-pulmonary cavities and the flexibility or rigidity of the thoracic walls. The shortening of the ribs causes them to become more parallel with the spine and thus diminishes the thoracic capacity. In time, the gaps left by the resection become bridged over by new bone which adds to the immobilization.

The effects of surgical procedures on the capacity of the lung are:

Massive pneumothorax gives massive compression.

Phrenic avulsion decreases capacity of thorax 1-6 (400 cc.) to 1-3 (800 cc.).

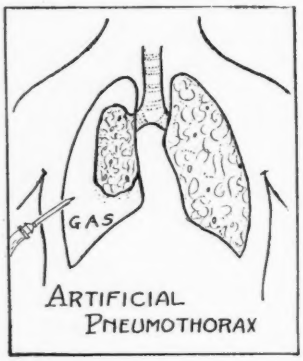
Complete paravertebral resection decreases capacity of thorax 1-4 (600 cc.) to 3-8 (900 cc.).

Phrenic avulsion plus complete paravertebral resection decreases capacity of thorax 5-8 (1500 cc.).

Phrenic avulsion plus complete paravertebral resection plus parasternal resection decreases capacity of thorax 3-4 (1800 cc.).

Results are proportionate to the resistance of the individual to the disease, as expressed in degree of pulmonary fibrosis, and to the degree and maintenance of collapse.

Artificial Pneumothorax is the compression and consequent immobilization of the lung by introducing under pressure an inert gas into the pleural cavity. J. Carson advocated the use of artificial pneumothorax in 1821. Houghton, in 1832, reported a case of advanced consumption which recovered after a spontaneous pneumothorax. Forlanini in 1894 and 1895, reported a series of cases which had



been treated with artificial pneumothorax. This procedure has gradually gained in favor until today it is regarded as a most important adjunct in the treatment of tuberculosis. Artificial pneumothorax will be discussed in August "Tuberculosis Abstracts."

The therapeutic result of rest is proportionate to the degree of rest obtained. To be of utmost therapeutic value, rest must be physical, physiological and psychic.—*Surgical Rest in Pulmonary Tuberculosis, Casper F. Hegner, American Review of Tuberculosis, March, 1928, XVII, 28292.*

WE SEE WITH OUR MINDS

Babies cannot really "see" until they are three weeks old because it takes that long for the function of sight in the new-born infant to begin to adjust itself to the light. And did you know that every white child has blue eyes at birth? Both of these facts are brought out by Dr. Park Lewis, of Buffalo, N. Y., Vice-President of the National Society for the Prevention of Blindness, in a recent article in *Hospital Topics*, published by the Millard Fillmore Hospital of Buffalo. We do not actually see with our eyes, but they help us to see with our minds, according to Dr. Lewis.

"The infant coming into the world requires for certain functions months, and for others, even years, before they are prepared for their proper uses," says Dr. Lewis. "The fibers of the optic nerve which carry the consciousness of light to the brain at first are not completed until three weeks after birth. It is the light which favors their development. The center of acute vision, the fovea, first attains its full development some months after birth. The iris or colored part of the eye, the central opening of which is the pupil, may not reach its complete development until the seventh year. As structure must be completed before function can be safely exercised, the necessity for care in the use of the eyes during these early and plastic years must not be forgotten.

"Just as all forms of life have required, before they reached their present condition, ages for their development and adaptation to present needs, so the individual comes into the world incomplete, and requires a long period of training and adjustment before he reaches his highest development. Sometimes, as we shall see, from structural deficiencies, that is to say, from congenital absence of the necessary tissues, there can never be as complete development of certain individuals as there is in their normally-formed fellows.

"The new-born child is then simply a bundle of potentialities. There are millions of nerve cells that must be activated before they are prepared to carry the light impulses back to the perceptive brain centers where these must be interpreted into terms of visual objects. The eyes of all white babies at birth are blue. They have not yet become deeply pigmented as many of them will at a later date.

"The eyeballs move vaguely at first, and during the early days they look almost blindly around them. They are unseeing eyes. Until there is answering intelligence within, the image of the object before the child conveys nothing to him.

"A lamp held before the face of the child will, in the course of a week or so, be followed by the eyes waveringly and indefinitely. It probably appears to the infant, whose intelligence has not yet become awakened, as a mere blotch of orange color. Gradually, as the weeks go on, the more definite and brilliant objects as they are presented before the baby, begin to excite, feebly at first, a sense of interest and curiosity. They appear very faint at first, but gradually increase, and with the increase comes

a rapid gain in the perceptive faculties. Through the eyes a pathway is being made to the mind.

"Out of the darkness—through the twilight—the babe is coming in contact with a new world; a new life is opening before him. Energy is stimulated and effort is excited. The impressions of moving objects about the room gradually take on more definite form, but for many months the little creature is merely a bundle of automatic reactions.

"If, after intelligence has become somewhat aroused, in place of the lamp an orange is held before the child's eyes, the blur which was at first that of the yellow light begins to take on form, and the little undeveloped being begins to note that the object is round and that it has a striking color. Later, the baby fingers touch it and another series of sense impressions are awakened. It is not only round but it has a velvety softness and a quality of roughness. The orange drops to the floor with a dull thud, and the auditory centers respond. These will later be discriminated so that the sound produced will be recognized, not as that of broken glass, nor of a falling book, nor of any one of the innumerable auditory impressions that will be recognized as distinctive. It is the sound peculiar to the falling fruit and to nothing else. Then the skin is broken, and the fragrance reaches the nerve endings in the membrane within the nose. The sense of smell is being stimulated. A new memory impression has been given, adding to the multitude that are now pouring in on the baby's readily-responsive senses. Then the juice of the fruit is put on the infant's tongue, and a complex of all of those qualities that go to make up the orange—those of light, of hearing, of smell, of touch and of taste—have been so impressed on his memory centers that they will never be eradicated while each nerve fiber can carry its message. At last, the baby reaches round the orange, and he will have made a great discovery—he has learned of the existence of depth. He is not living in a flat world but one of three dimensional spaces, and in learning this he has made an immense stride in the newly-acquired knowledge to which he is now rapidly adding every hour.

"Every time a known object is brought into sight, memory impressions are shot from one brain center to another with a degree of energy far exceeding that of the busiest telephone exchange.

"The way in which sight is developed is of great importance, because in its functioning, not alone during babyhood but as well during adolescence and middle life (even in old age), many changes in essential structures may be effected. In order that this may be better understood, let us briefly consider how the eyes work that we may see.

"It may seem a little startling to those who have not thought of it, that we do not see with our eyes; we see with our minds. The eyes are so constructed that they convey light impressions by way of the optic nerves to the back portion of the brain. There they make an impression on the nerve cells corresponding to the image of the object upon which the eye looks. The eye is a darkened chamber and the picture received upon it is very much like that on the ground glass of the camera in the photographer's studio. If the eyeball be removed from a rabbit or sheep and, while it is still clear, be held before a window, a little picture of the window may be seen on the back of the eyeball.

"When this impression is carried back to the brain, it will have no meaning until it shall have been interpreted by another part of the brain. So in a perfectly normal condition we may have 'eyes which see not.' We may look in the face of a friend and be thinking of something else and it will make no impression on us. It will be, indeed, as though he were not there. It is only when by an effort of the mind that we 'fix,' so to speak, the impression, and through an act of memory relate it to the person whom we see, does the image in our eyes have any meaning for us.

"As we walk through the streets, the images of the objects that pass before our eyes make a series of moving pictures, but for the most part they are ignored and make no impression on us. We give no thought to them. The importance of this is very great from an educational viewpoint. So much of our visual training is unassociated with mental activity as to make it unproductive. There are certain conditions in which injuries within the brain, such as hemorrhages, may so interfere with the connection between the seeing part and the memory centers that an object previously familiar may be clearly seen but will have lost its meaning. People in that way sometimes lose the faculty of reading, although the type may be clearly seen, the intelligence unimpaired, and the ability to write unaffected. So it will be well to bear in mind constantly that the function of vision when not physically obstructed is maintained and developed by its intelligent use, and that it may be seriously impaired by the failure to properly care for and use the delicate tissues of which the eye and the nerves connecting it with the brain are formed."
—*Bulletin of the National Society for the Prevention of Blindness*, 370 Seventh Avenue, New York City.

WORK OF THE MASSACHUSETTS S. P. C. C. 1927

In 1927 the Massachusetts Society for the Prevention of Cruelty to Children received nearly 12,000 children under its care—11 per cent. more than in 1926. The society attributes this larger number rather to an increased use of its help by the public than to an increase in child abuse and neglect. About 4 out of 5 of the family problems presented last year were adjusted without legal action, so that only 1 in 5 of the 12,000 children was brought directly under the jurisdiction of a court. It was found necessary to remove only 1 child in 25 permanently from parental control.—*Bulletin Children's Bureau, Washington, D. C.*

DENIES CONVICTS ARE DULL—Dr. Lawson G. Lowry of New York, speaking at the annual convention of the American Association for the study of the Feeble-minded, at Haddon Hall, has said that contrary to general opinion, it is not lack of mentality which is responsible for most of the crime and criminals. "A study of convicts has shown that the average mentality of criminals is about the same as the average for the entire population," he said.

He declared that swindlers and forgers showed a higher mentality than that of the average citizen, and that a study of the mentality of the prisoners in Illinois penal institutions gave about the same average of intelligence as was found in the United States draft army during the World War.—*New York Times.*

TRAINING IN PUBLIC HEALTH

It is now possible for health workers in different parts of the country to secure supplementary training in public health by taking extra courses during the summer months. A vacation spent in this way is a profitable expenditure of time. Such programs do not tax the energy too heavily since they are varied enough to include theoretical discussions, laboratory technique and field trips. They can be so closely knitted into a well rounded program as to enlarge one's vision of the public health field, and add to one's knowledge of the accepted methods in public health work.

Aside from this there is a valuable exchange of ideas with other members who come from all parts of the country. This is always stimulating. We had occasion to visit one or two of such classes last summer and were caught by the spirit of scientific interest which prevailed among such groups. It seemed to us that this, added to the basic knowledge which was gained in such courses, must undoubtedly lead to a better understanding of community problems back home.

Recently among others, announcements of summer courses in public health have been received from Massachusetts Institute of Technology, Columbia University and University of Chicago. At Chicago courses are grouped under "Bacteriology", "Health Education", "Public Health Administration", "Epidemiology", "Parasitology", "Immunology", "Personal Hygiene", "Physiology of Nutrition" and "Statistics". Here one chooses subjects to suit one's particular need or interest, with the possibility of making an intensive study of any one of these phases of public health. The season is in two terms beginning June 18 and July 2 respectively.

At Columbia University, New York, the regular summer session, opening July third, includes many public health subjects—"Public Health Administration", "Sanitary Science", "Industrial Hygiene", "Nutrition in Health Education", "Personal Hygiene", "Administration of Health Work in Schools", "Organization and Supervision of Health Education", "Research in Child Health". Here one also selects courses to suit one's needs.

The Massachusetts Institute of Technology likewise offers special subjects in public health, such as "Methods of Teaching General Biology", "Bacteriology", "Health Education Methods", "Hygiene of the School Child" and "Public Health Laboratory Methods". These are given by regular members of the staff in the Department of Biology and Public Health, beginning July second.

To meet the growing demand for a special program of study for public health officials its Second Public Health Institute has also been announced by this same institution. The Institute embraces the important phases of public health under the following subjects:

Milk Supplies; Water Supplies; Sewage Treatment Disposal; Diphtheria Control; Scarlet Fever Prevention; Epidemiological Methods; Tuberculosis; Smallpox, and Typhoid; Slaughter Houses and Market Inspection; Nutrition, and Dental Programs; Health Centers, and Public Health Nursing; School Health Education; Publicity; Public Health Laws, Surveys; Department Records, and Vital Statistics.

The Public Health Institute covers the period between July second and twenty-fourth with daily sessions beginning at 9 A. M. The regular faculty of the Department of Biology and Public Health of the Massachusetts Institute of Technology will be augmented for this Institute to include health officials well known nationally in their respective fields. Further information may be obtained directly from the Institute at Cambridge, Massachusetts.—*Bulletin Connecticut State Department of Health.*

TYPHOID CARRIERS IN NEW YORK CITY

Through the bacteriological examination of stools of all typhoid convalescents, the routine examination of food handlers, and in the course of epidemiological investigations, the Department of Health now has the names of 263 typhoid bacillus carriers on its records. Of these 66 are males and 197 females. Our histories show that 122 of these carriers transmitted typhoid fever to others, more than 355 persons being known to have become infected from this source.

Through death or removal, 55 names have been removed from the list, so that at present the Department's active file shows 208 typhoid bacillus carriers in the City of New York.

As soon as an individual is officially declared a typhoid carrier by the Board of Health he is formally notified to that effect and is given a set of detailed instructions to assist him in protecting his family and others with whom he may come into contact. At intervals of about three months thereafter the carrier is visited by a nurse of the Department of Health in order to keep him under observation. Once a year specimens of stools are examined bacteriologically.

Wilful refusal of a typhoid carrier to comply with any of the regulations adopted by the Board of Health may result in his forcible removal and detention at one of the isolation hospitals maintained by the Department of Health.

A list of the declared typhoid carriers is furnished to the clinics for food handlers so as to guard against the issuance of a food handler's card to any known carrier.—*Bulletin of the New York Department of Health.*

HOPKINTON THERAPY CENTER

The Occupational Therapy Center for Mental Patients at Hopkinton, Massachusetts, is making a distinct contribution to the State Hospitals of Massachusetts. The number of patients is limited at the present time to twelve women, but it is the desire of those interested in the project to enlarge the capacity of the Center. It is a novel feature among the State Hospitals of the country; only recently one of the New York State Hospitals established a similar institution based on the same principles. The group cared for consists of patients who are sufficiently recovered to leave the hospital, but who are not well enough to go into the community. It is the intention of those in charge that all patients shall move on into the community. It is not a convalescent home in the usual sense of the word since all patients are required to do some work which is considered in the nature of therapy. Articles of much beauty in the way of linens, dresses, scarfs and jackets are produced and sold, the income being used to pay for materials used, to reimburse the patients for their work, and to add to a central fund which is drawn upon to assist in paying the board of the patients.—*Bulletin of the Massachusetts Society for Mental Hygiene.*

APPOINTMENTS AND PROMOTIONS ON THE SCIENTIFIC STAFF OF THE ROCKEFELLER INSTITUTE

The Board of Scientific Directors of The Rockefeller Institute for Medical Research announces the following appointments and promotions:

NEW APPOINTMENTS

Associates—Dr. Robert R. Hannon, Dr. Fritz Lange, Dr. Henry R. Muller, Dr. Cornelius P. Rhoads.

Assistants—Dr. Robert B. Corey, Dr. Martin H. Dawson, Dr. Malcolm Dole, Mr. Elmer E. Fleck, Dr. Thomas Francis, Jr., Dr. Donald C. Hoffman, Dr. Christopher Johnston, Dr. Currier McEwen, Dr. Norman S. Moore, Dr. James F. Pearcy, Dr. Albert L. Raymond, Dr. F. Duran Reynals, Dr. Alexander Rothen, Dr. Charles A. Slanetz, Miss Evelyn B. Tilden.

PROMOTIONS

Associate to Associate Member—Dr. Louis A. Mikeska.

Assistant to Associate—Dr. Edwin L. Gustus, Dr. Charles H. Hitchcock, Mr. Thomas P. Hughes, Dr. William S. Tillett, Dr. Perrin H. Long.

Fellow to Assistant—Mr. Philip R. Averell, Dr. Rene J. Dubos.

RESIGNATIONS

Dr. Jacob J. Bronfenbrenner has accepted appointment as Professor and Head of the Department of Bacteriology and Immunology at Washington University Medical School, St. Louis, Missouri.

Dr. E. V. Cowdry has accepted appointment as Professor of Cytology in the Department of Anatomy of Washington University Medical School, St. Louis, Missouri.

Dr. Fred W. Stewart has accepted appointment as Assistant Pathologist at the Memorial Hospital, and Associate in Pathology at Cornell University Medical School, New York City.

Dr. Clifford L. Derick has accepted appointment as Assistant Professor of Medicine at the Harvard Medical School and Physician to the Peter Bent Brigham Hospital of Boston.

"SOLDIERS OF PEACE"

The B. M. C. Durfee High School of Fall River has been awarded second prize in the National Health Playwriting Contest for the play "Soldiers of Peace" written by Rita and Lester Radovsky.

It is worthy of special note that each year of the four during which the National Health Playwriting Contest has been carried on, high schools in Massachusetts have been awarded prizes. The plays have been judged for their health message and dramatic value.

FEEBLE-MINDED AND EPILEPTICS IN STATE INSTITUTIONS: 1927—CONNECTICUT

Preliminary Report

Washington, D. C., July 2, 1928.—The Department of Commerce makes the following announcement for the State of Connecticut concerning results of the 1927 census of feeble-minded and epileptics in State institutions.

The Mansfield State Training School and Hospital had a total of 144 first admissions during the year 1927, as compared with 80 in 1926, and 39 in 1922.

These first admissions represent patients received during the year, who had not previously been under treatment in any institution for feeble-minded and epileptics. Such newly admitted patients afford the best available measure of the number of new cases which are brought under institutional care during the year.

The increase in the number of first admissions in Connecticut between 1922 and 1927 was relatively greater than the growth in the State's population during the same period, as shown by the fact that the first admissions in 1927 numbered 8.8 per 100,000 of population, as compared with 5 per 100,000 for 1926, and 2.7 for 1922.

The extent to which provision has been made for the State institutional care of feeble-minded and epileptics is perhaps best indicated by the number of patients in the institutions on a given date, The number of patients present in the Mansfield Training School on January 1, 1928, was 710 as compared with 294 on January 1, 1910; and the ratio of such patients per 100,000 of general population increased from 26.4 on January 1, 1910 to 43 on January 1, 1928.

Of the first admissions in Connecticut during the year 1927, 66 were males, and 78 were females; and of the patients present on January 1, 1928, 358 were males, and 352 were females.

RECENT DEATH

WILLIAMS—Dr. Charles Crosby Williams, a retired Fellow of the Massachusetts Medical Society, died at Los Angeles, Cal., January 18, 1928, aged 72. He was born in North Anson, Me., December 23, 1855, took the Ph.G. degree at the Massachusetts College of Pharmacy in 1881 and the M.D. at Harvard Medical School in 1886. From 1882 to 1900 Dr. Williams was successively secretary, vice-president and trustee of the Massachusetts College of Pharmacy. He was medical director of the Bay State Benefit Association. He removed to Hartford, Conn., in 1900 and was assistant medical director of the Hartford Life Insurance Co. when he changed his residence to Los Angeles in that year.

OBITUARY

MYLES STANDISH, M.D.

Death has claimed a well known Boston ophthalmologist in the person of Myles Standish, who died at the home of his daughter in Cambridge, June 26, 1928, at the age of 76 years. He traced his descent from that first Myles Standish who came over in the Mayflower and was of so much service to the Plymouth colonists. Dr. Standish compiled and published "The Standishes in America" in 1894 and always maintained an interest in genealogical matters.

The son of Francis and Caroline Amanda Rogers Standish, he was born in Boston, October 17, 1851. After attending the Roxbury Latin School he took an A.B. at Bowdoin in 1875. Later that college conferred its A.M. and honorary S.D. upon him. Meanwhile he had completed the course at Harvard Medical School, served as house officer at the Carney Hospital and at the Massachusetts Charitable Eye and Ear Infirmary and had gone to Berlin to study at the

university there during the years 1880 and 1881. Settling in Boston he devoted himself to ophthalmology. He was professor of that specialty at Dartmouth from 1903 to 1910, attending at Hanover each season, instructing and operating on the patients who had been collected for his attention. At Harvard he was Williams Professor of Ophthalmology from 1909 to 1914—a professorship endowed by the pioneer professor of diseases of the eye, Henry Willard Williams, in 1898. In 1912 Dr. Standish was president of the American Ophthalmological Society. He wrote many papers for the medical press, notably articles on diphtheritic conjunctivitis, for the transactions of the national society, in 1897 and 1898; the standard of vision in the United States Army, for the transactions of the Association of Military Surgeons, 1900, and Motor Changes in the Ocular Apparatus, Associated with Functional Neuroses, for "A System of Diseases of the Eye," Norris and Oliver, 1900. He was commander of the Ambulance Corps of the Massachusetts Volunteer Militia from 1889 to 1901 and an officer of the Massachusetts Society of Mayflower Descendants, also a member of the Society of Colonial Wars and of the Army and Navy Club of Washington. He lectured occasionally at social gatherings on art from an ophthalmologist's point of view, showing on one such occasion that some of the paintings of well known artists demonstrated that the artist was afflicted by astigmatism.

Dr. Standish was short of stature, had a military carriage and an infectious smile while talking. For the last five years he had been retired from the active duties of his profession.

On April 28, 1890, he married Miss Louise Marston Farwell of Boston, who survives him, as do two sons and two married daughters.

CORRESPONDENCE

STATISTICS RELATING TO COMPENSATION BENEFITS*

Editor NEW ENGLAND JOURNAL OF MEDICINE:

Payments actually made to doctors, hospitals, for medicines, i. e., under the medical provisions of the Act, $2,294,101.41; Payments outstanding for medical, $416,603.08; Payments actually made to employees or dependents in fatal cases, $150,922.65; Payments outstanding in fatal cases, $813,916.86; Non-fatal cases paid, $3,179,927.37; Outstanding in non-fatal cases, $1,163,163.01.

It can be seen, from the above figures, that of actual payments made, medical expenses were about 2/5 of the entire cost of the Compensation Cases. These medical bills cover all the doctors and hospitals and clinics (both insurers' and private).

One reason for this is that insurers must provide medical benefits during the first 7 days, but no weekly benefits (no $18 or less weekly) in any case involving less than 28 days' disability.

SAMUEL B. HOROVITZ.

*Addenda to the article on page 31 of this issue. Furnished June 30, 1928, by Secretary Grandfield's office (Industrial Accident Board) for the fiscal year 1927.

"THE CONGRESS OF THE GERMAN CANCER RESEARCH COMMITTEE"

From Our Foreign Correspondent

Vienna, May 28th, 1928.

This was the first occasion on which the "Deutsches Zentralkomitee zur Erforschung und Bekampfung der Krebskrankheit" held a congress, separate from the Society of German Physicians and Natural Philosophers, in picturesque Wiesbaden, extending to the foot of the Taunus Mountain, the leading watering place of Germany, which was one of the foremost and most attractive health resorts of the Roman Empire under the name, Aquae Mattiacae. As the German Internist Society also discussed in this year its first theme: the action of cancer upon metabolism, the two societies could coöperate. These congresses were followed by the congress of Pathologists on chronic enlargement of the spleen.

The opening address was given by Friedrich Kraus, Berlin, who, after a reverent recollection of the merits of the recently deceased Fibiger and Smith, made a parallel between cancer formation and regeneration on the ground of his experiments made on plants.

Great interest was shown in the lecture of A. Fischer, Dahlem, who spoke of the biology of cancer cells, cultivated in vitro. He said that the tumor cells, cultivated in tissue cultures, retain their malignity for years. Cancer cells grow in vitro much more slowly than do normal cells. They can take up nutriment also from serum, while the intact cells need extract or embryo or tissue extract. They overgrow all other cells, even fibroblasts. Cancer cells are very sensitive to changes in their surroundings, hydrogen-ion-concentration, oxygen tension, etc.; in fact, much more sensitive than normal cells. Their metabolism differs from that of intact cells through aerob glykolysis.

Waterman, Amsterdam, found the polarization resistance of cancer tissue and the relation between polarization and absolute resistance to be very slight in comparison with that of normal tissues. By using tar he could demonstrate malignancy already at such a juncture, when the tissue picture was not yet characteristic of cancer. He corroborated the findings of Freund and Kaminer, according to which there is a cancer cell-lytic substance in the normal serum, which is wanting in the serum of cancer patients. He succeeded in isolating this substance, which, according to him, originates from the reticulo-endothelial system. Its disappearance from the serum has to be regarded as the expression of tendency toward cancer.

Teutschländer, Heidelberg, regards the Rous-sarcoma as a true tumor. Its inoculation with cell-free filtrate, in dried powder form, with metastasis-free organ, or with animal blood, is quite an easy matter. Recent investigations, however, show living cells also in these. An argument against its infectious origin is the fact that the tumor could be provoked from the pure culture of normal spleen-macrophages, with chemical stimuli, by taking due precaution to exclude the possibility of an infection taking place. The cell-free inoculation could be explained on the assumption of the existence of an "ens malignitatis" which is capable of transforming the intact cells into malignant ones. The "ens malignitatis" may be regarded also as a pathological Carrel kind of "trephon."

Fränkel, Berlin, similarly regards the Rous sarcoma as a true tumor. He proved the transference with cell-less matter by his own experiments, through which he was able to produce a tumor by the yolk of eggs taken from the ovaries of animals suffering from tumors. He assumes the presence of an "agent" in the trans-oculation of tumor, (which) etc., which agent acts upon thermic, biologic and chemical in-

fluences, as a ferment does. It is destroyed at 55° C. heat. It sticks to the euglobin precipitated from the filtrate and may be further cultivated with bacteria cultivated out from the tumors. In the conception of the tumor the quantity of the agent also plays a certain rôle. The iron-sugar, china-ink used in transoculation accelerates the germination only.

Werner, Heidelberg, related the results of his experiments, which proved with autolyzed human sarcoma and cancerous tissue that it is possible to evolve malign tumors in mice after a latent period of 9-24 months, in 5-6% of the cases.

Erdmann and Haagen, Berlin, observed in six out of 83 rats the formation of tumor through the change of vitamin rich and vitamin poor foods. This corresponds to 7% as against the rate of spontaneous tumors, which amounts altogether to 1%.

Caspari, Frankfort, called the attention of the Congress to the rôle of animal and vegetable raw foods in the etiology of cancer. Feeding with these before transplantation hastens the increase of tumors through Vitamin "B" rather than Vitamin "A". On the basis of these experiments he recommends B-poor foods after cancer operations and *after* irradiation.

Magat, Dahlem, treated cancerous mice by giving them peroxydase and phosphatides at the same time. Out of 450 mice 125 survived treatment. The tumor of 23 showed *retrogression.*

Halberstadt, Berlin, demonstrated with lantern slides his wonderful results achieved by placing thorium X batons into tumors. He carried out his experiments in the Berlin Cancer Research Institute on cases of facial, breast, tongue, palate, and buccal cancers. He regards his little known method as superior to radium and X-ray treatment.

Baltzre, Hamburg, tried to immunize cancer patients by the transplantation of cancer, and at the same time he investigated the transplantation of cancer upon other patients. He hopes to produce immunity with the agents liberated by the decay of the cancer cells. The president, Herr Kraus, cautioned the speaker to beware of making experiments with the transplantation of cancer on human beings.

Blumenthal and Auler, Berlin, produced tumors in experimental animals by the application of metastasis-free spleen of cancerous mice and rats. The tumors have shown alveolar pictures in three cases, while the original tumors were Jansen-sarcomas. From this and other experiments they conclude that the produced tumors do not correspond to metastases, but are the sequelae of a tumor-arousing agent seated in the spleen, which agent is probably conveyed by the monocytes of the spleen. According to this they attribute a rôle to the spleen in the origination of cancer and in the immune processes connected with it.

Auler and Pelczar, Berlin, succeeded in carrying kind-strange tumors into animals, if they have previously brought them to an allergic state with kind-strange serum. For a non-specific Reiztherapie (stimulating therapy) the pre-anaphylactic state is most convenient. In men they saw favorable results from the combined treatment of lipoidantigen and esterase, and also from feeding the patients on vitamin-poor diets, and from exaggerated oxygen pressure.

Rondoni, when painting rabbits and mice with tar, has observed the restraining of the development of cancer from serum and lipoid therapy.

Sternberg, Vienna, emphasized that the exact judgment of the results of cancer therapy requires accurate histological examination. Necrosis of the tumor cannot be regarded as a therapeutic result, because it can often be seen without any treatment whatever. In cancer research he suggests close coöperation with the pathologists.

Sachs, Heidelberg, did not see any results in mice from the administration of sera and lipoids; mice are unsuitable for experimentation, rats being much more suitable for this purpose.

Bernhardt, Berlin, believes that he had seen fair local and general amelioration from the administration of isamin-blue, in men. It destroys the nucleus of cells.

Finally Demuth showed the tissue cultures of tumor cells through very interesting and instructive films.

The Congress was closed with the words of Blumenthal, who drew the conclusion from all the papers read at the Congress, that at present we fail to have a drug, capable of destroying cancer without being harmful to the human host.

ALFRED ERDOS.

DANGERS OF FAT IN DIABETES—A DISSENTING OPINION

NEW ENGLAND JOURNAL OF MEDICINE,
Boston, Mass.

To the Editor:

In your issue of April 12, 1928, Dr. Joslin makes lamentation for the poor diabetic who, for lack of receiving one hundred grams carbohydrate per day, is consequently heading straight for the demnition bow-wows of arteriosclerosis and waning glucose tolerance.

And since the famous Boston internist may see a thousand diabetics to our one, we all incline to accept his unsupported opinions as gospel verity. However, in this article, cases are dragged in, apparently as proof of his contentions. Now our own "scrivenings" are naturally puerile, but how writeth the master?

He cites heart-rending necropsy findings in a "series of one case", a patient on high-fat diet who had lived not wisely but too well, as shown by his gaining eighty-six pounds. And yet we are calmly supposed to infer that it was the fat, and not the calories, which conduced to the sad and gooey ending. So we are to believe that on suitably restricted diet, calories of fat are wont to deposit deleterious fat in the tissues, whereas calories of carbohydrate decorously abstain therefrom? Is the diabetic to be allowed a surplus of *anything*, to be deposited as harmful body-fat? Is, then, energy from the burning of fat something different from that furnished by the burning of carbohydrate? How come?

As to the "baneful influence of a low-carbohydrate, and high-fat diet", there is of course a limit to highness, lowness, but, pray, by just what acceptable controls has it been shown that a hundred grams of carbohydrate protects from atheromatosis, whereas fifty does not?

Perhaps no one has pushed high-fat to such extremes as Peterman in his ketogenetic diets, but in personal communication a fortnight ago, on forty or fifty grams C. per day, he has yet to detect any of these doleful tendencies.

Diabetes is no entity. The underlying lesion may be recessive, stationary, or irresistibly progressive. If the latter, no matter how fed, tolerance is going to grow inexorably less. Furthermore, there will usually be a change of doctors and the good Dr. Next

will sigh, "If I only could o' had him when—etc."; whereas now the poor devil is merely a horrible example of whatever treatment he had first.

The Sage of Mrs. Leatherby's mentions a series of diabetics studied at Buffalo, where the only case not showing premature sclerosis was one of his own. Fine! But for all we are told it may have been his only case that doesn't. If not sharp carbohydrate restriction, then we are indeed hectic to know just what tenable principles of diabetic therapy *have* "been handed down to us through the ages"?

The learned doctor makes esoteric allusion to occult effects of minute insulin doses:—two hundred fifty grams carbohydrate per day, with five units of insulin. A case seen at the Deaconess was getting, as we recall, over a hundred grams C., with just one mystic unit of insulin per day. What now, homeo-insulin-opathy? Whence these magic effects of exogenous, as opposed to endogenous insulin?

One naturally wonders as to the weight of that patient "sent into hypo-glycemia by *one-half unit* of insulin." If an adult, (to compare a tiny child would be grossly misleading) it may merely be said that we fail to get such kick out of insulin, here in the wild and ignorant West.

Now the proponents of high-fat regimes are believed to be as genuinely interested as our New Englanders are in the ultimate welfare of the patient, nor are they pledged to any bitter-end defense of a theory. None will be quicker to drop an idea when once shown deleterious. But first let them be shown, not merely scare-crowed.

If arteriosclerosis can be induced in dogs, etc., it would seem that research might be done, using subtotal pancreatectomized animals, thus obtaining diabetes of measurable severity and fairly uniform inherent prognosis, on which controls could really be run and sclerosis plotted.

Aside from which, perhaps the only elimination of the utterly perturbing differences arising from the unknown etiologies in human cases, would be old Solomon's well-known judicial technic of bisecting the patient and treating each half differently! Here in the country, however, we are hampered in such procedures by lack of coöperation on the part of the patient.

DON H. DUFFIE, M.D.

Central Lake, Mich.

THE REPLY

NEW ENGLAND JOURNAL OF MEDICINE,
My dear Mr. Editor:

Thank you for your courtesy in sending me your correspondent's breezy letter aroused by my brief article upon Diabetic Ideals in your JOURNAL[1].

May I first congratulate the JOURNAL upon its wide circulation, because no such letter came to my attention following my more extended discussion of Arteriosclerosis and Diabetes in another journal[2], or that of a paper along similar lines, entitled The Ten Year Diabetic, in a medical periodical[3] which next to your own claims age as an asset. Mr. Editor, not only has your NEW ENGLAND JOURNAL a wide circulation, but, what is better, it is read.

Arteriosclerosis interests me, because half of my diabetics die of it[4]. Do you ever wonder, Mr. Editor, of what diabetics die in other clinics? Dr. Maurice Richardson taught me to publish all my deaths and I have attempted to trace all my cases for 30 years for this especial purpose. Do you think of any other disease in which arteriosclerosis in young and old is so consistently present at autopsy at the end of 5 years[5], or so rapidly demonstrated in 90 per cent. of the cases by X-ray at the end of 10 years as in diabetes? A fat boy or girl, a fat young man or young woman is not arteriosclerotic at the end of 5 years and sclerotic tibials are not found in 9 out of 10 cases at the end of an obesity-decade.

My fat doctor friend, Case No. 653, with diabetes of 15 years' duration, beginning with 5.8 per cent. sugar in 1913, when 67 years, 11 months old *on March* 4, 1927, weighed 214 pounds, and yet showed no arteriosclerosis in the arteries in the lower extremity. Case No. 5762 with a high blood pressure, which is said to have begun in 1908 and, as so often happens, with glycosuria and hyperglycemia beginning after years, in her case in 1926, is free from arteriosclerosis in her legs, although it is present in her eyes. To me, Mr. Editor, the *deposited* fat, as in an obese individual, is far less a factor in causing sclerosis than fat which is *inadequately* burned as when an individual is on a very low carbohydrate diet. My doctor, Case No. 653, had 5.8 per cent. sugar in 1913, but he has never taken less than 100 grams carbohydrate. With time, as is the rule in diabetes, his diabetes is milder and his blood sugar in March 1927, was 0.14 per cent. and he was sugar free.

Dr. L. B. Morrison has given me the facts upon which my statements are founded, but he will publish them in more extended form. To be specific, he has made X-ray pictures of the legs of 536 of my diabetics and of the legs of 110 who have had diabetes for 10 or more years. Among the latter number there are 11 who show no arteriosclerosis. In none of these cases has the diet been much under 100 grams for the major part of the 10 years, save Case No. 1729 whose weight at onset of diabetes in 1919 was 82 pounds. This patient has taken about 65 grams carbohydrate on the average for these years and Case No. 5301, whose diabetes began at 13 years of age, has taken slightly more. The remaining Case Nos. are 4530, 1893, 4976, 653, 3496, 6286, 1498, 5472, 3751.

I have considered an extremely low carbohydrate high fat diet harmful for the diabetic for years, formerly because of acidosis, recently because of arteriosclerosis, and at the Deaconess we have noticed that the diabetics on fairly liberal carbohydrate diets show less sclerosis than those of similar age or even younger who had low carbohydrate diets. Each morning, Dr. Morrision with Dr. Bogan, and Drs. Root, White, Curtis, or I are on the watch for it. Dr. Bowen of Buffalo made the point of 100 grams carbohydrate being the diet of one of our 10 year diabetics who did not show arteriosclerosis and it seemed courteous to him, a younger man, to cite his statement, rather than our own rather more numerous observations, because his may have been the first in print.

More light is needed. As I knew Professor Petrén in Lund, Sweden, where fairly low carbohydrate diets and very high fat diets have been employed, some months after his death I wrote his former assistant either Dr. Mallmros or Dr. Odin, and in reply learned that investigations will be conducted there upon the prevalence of arteriosclerosis in their patients. Unfortunately, as a test, their data are not quite satisfactory, because their patients are not kept on so low carbohydrate diets as has been generally believed.

The experiments with epileptics on ketogenetic diets would furnish an excellent control. I await

the publication of X-ray studies of such cases after they have lived upon such diets for 10 years, or reports of autopsies upon epileptic cases treated with ketogenic diets for 5 years.

It would be a happy contribution to the problem of arteriosclerosis in diabetes, if the effects of high and low carbohydrate diets along with high and low fat diets were studied upon partially depancreatized dogs. I am no surgeon and furthermore when I worked as a boy in a little town in a shoe factory my neighbors at the bench taught me an old adage about a shoemaker and his last. At present my "last" appears to be to continue to treat diabetics and to try to keep them alive and leave to others, who see less of these individuals, experiments on animals.

Hypoglycemia with one unit of insulin occurred in my Case No. 2909 while upon a diet of 114 grams carbohydrate, and the blood sugar fell to 0.03 per cent. His weight was *80* pounds and he had diarrhoea[6]. Allen and Sherrill's[7] case received only half a unit.

The high fat diets of the West have taught us a very great deal but, Mr. Editor, would you wish to adopt them after reading the classic article of Brace from the Clinic at Ann Arbor, Michigan. He writes:

"A failure to obtain evidence of improvement in the tolerance for glucose in five patients, who had received weighed, high fat, low protein and low carbohydrate diets and daily insulin over periods varying from 32 to 45 months, has given us no ground for believing that insulin is capable of effecting a cure or a partial cure of human diabetes mellitus. Each of these patients has lost tolerance during the period of treatment with insulin."[8]

We at the Deaconess believe some of our patients do show gains in tolerance and that it is due to insulin and hygiene combined with a diet less restricted in carbohydrate, but more restricted in fat than originally employed in Lund and Ann Arbor. We are gratified at our increasing number of children with diabetes of 10 years' duration. As yet we have not seen the history of a case of diabetes beginning in childhood who has lived 10 years and constantly on a diet with carbohydrate even as low as 50 grams, and fortunately for the child probably none such will ever be published, because insulin has abolished a permanently low carbohydrate diet and thereby we hope both banished coma and postponed the onset of arteriosclerosis in this disease.

I have taken the liberty, Mr. Editor, to enclose reprints from those journals which, unlike our NEW ENGLAND JOURNAL, do not seem to have extended their circulation to Central Lake, Michigan.

ELLIOTT P. JOSLIN.

REFERENCES

1 N. E. Jour. of Med., 1928, 198, 379.
2 Annals of Clinical Medicine, 1927, 5, 1061.
3 American Jour. Med. Sci., 1928, 175, 472.
4 Actually 47 per cent. of 609 fatal cases between August, 1922, and July, 1926.
5 Nineteen autopsies upon diabetics of five or more years' duration.
6 Joslin: Jour. Metab. Research, 1922, 2, 651 and 676.
7 Allen and Sherrill: Jour. Metab. Research, 1922, 2, 940.
8 Brace: Annals of Internal Medicine, 1927, 1, 203.

EXTENSION GRADUATE COURSES

To the Editor:—

I was much interested in the article in your last number on extension graduate courses, and thought that a brief resumé of the work as it has been carried on in North Carolina might be of interest to your readers. It was started in 1916 with two courses in Pediatrics, with Dr. Jesse Gerstley of Chicago and myself as instructors. Dr. Gerstley had six towns in the central part of the State; I had six in the Eastern part. Each day we lectured and gave a clinic in one of our six towns in rotation; sixteen lectures in each town.

The largest town I had was of about 30,000 inhabitants; the smallest about 500. The men came not only from the towns in which the lectures were given, but from the smaller villages and settlements all around, some of them coming as far as thirty miles. There were about fifteen to twenty men in each group, and as a general thing the groups in the smaller towns showed the most interest. It is to essentially rural communities that this method of instruction best applies, I think. The lectures and clinics were held in schools, town halls, court rooms, and in two towns in small hospitals. There was a great deal of interest shown in the clinics, especially, and at the first clinic in Tarboro, a small town of not over two thousand inhabitants nearly fifty children were brought from hamlets and from all around the district, with every conceivable sort of diseased condition. It was afterwards found necessary to restrict the patients seen to those who were brought by their physicians; usually difficult cases of one sort or another. These made excellent material for general discussion. As a rule the doctors took a great deal of interest in the course, and most of them felt it was worth while. The course was run by the State Department of Health, and the extension department of the University of North Carolina. A great deal of preliminary work was necessary in getting the men signed up for the course, and in assigning places of meeting, and so on. This was done by a representative of the administrative department of the University, and on my first circuit he went with me, and got me started. The preliminary organization of such a course is the most difficult part of it, and must be done by someone who can devote all his time to it for a considerable period, as it involves a good deal of traveling, and interviewing many doctors.

The fee charged each student in the course was not large, about $40.00 I think, and yet inasmuch as about a hundred men took it, there was enough to pay the instructor a good salary, and to allow plenty for the administration expenses. This method of instruction has proved so successful that since 1916 courses have been given nearly every summer in North Carolina, in Pediatrics and in Internal Medicine, and several men from Boston have served as instructors, of whom I can recall Dr. F. D. Adams and Dr. Dwight O'Hara.

Such a method brings instruction to the practitioner at a very small cost, without making it necessary for him to leave his practice, and I see no reason why it could not be carried out all over Massachusetts, or indeed New England, as well as in Carolina. It needs a good administrator and organizer, who is an enthusiast, and who is willing to work hard in order to get the thing started, and in Carolina most of the credit belongs to Dr. Watson Rankin, who was the Secretary of the State Board of Health, and to Dr. Isaac Manning, Dean of the Medical School of the University of North Carolina.

Sincerely,

LEWIS WEBB HILL.

THE EXTENSION OF SERVICE TO VENEREAL DISEASE PATIENTS

June 20, 1928.

Editor NEW ENGLAND JOURNAL OF MEDICINE,

May I announce through your columns the appointment of a committee to advise the Department in regard to extension of service to venereal disease patients. This committee is made up of Dr. E. Granville Crabtree, Chairman, Dr. Austin W. Cheever, and Dr. Harry W. Goodall. They are planning to visit the various State-subsidized venereal disease clinics and to study other aspects of this enormously important public health problem. The group is also functioning as an advisory committee appointed by Dr. Cecil K. Drinker, President of the Massachusetts Society of Social Hygiene. This is another example of the ability of commanding high quality of advisory service in which Massachusetts cannot be surpassed.

Yours truly,
GEORGE H. BIGELOW, M.D.,
Commissioner of Public Health.

A CORRECTION OF THE NAME OF THE INSURANCE COMPANY NAMED IN THE REPORT OF THE COMMITTEE ON INSURANCE

June 26, 1928.

NEW ENGLAND JOURNAL OF MEDICINE,

Gentlemen:

In your June 14th issue, on page 919, you state the adoption of the minority report submitted by one member of the Committee on Insurance, demonstrates the renewed approval of the policy of the Fidelity & Casualty Company. Let me state that this should read the United States Fidelity & Guaranty Company as the Fidelity and Casualty Company discontinued business in Massachusetts in 1923.

Yours very truly,
GEORGE H. CROSBIE.

NOTICES

UNITED STATES CIVIL SERVICE EXAMINATION

The United States Civil Service Commission announces the following open competitive examination:

Associate Physiologist

Applications for associate physiologist must be on file with the Civil Service Commission at Washington, D. C., not later than August 8.

The examination is to fill vacancies in the Hygienic Laboratory, Public Health Service, Washington, D. C., at a salary of $3,600 a year.

EXAMINATION FOR ENTRANCE INTO THE REGULAR CORPS OF THE UNITED STATES PUBLIC HEALTH SERVICE

Examinations of candidates for commission as Assistant Surgeon in the Regular Corps of the United States Public Health Service will be held at the following-named places on the dates specified:

At Washington, D. C.	November 5, 1928
At Chicago, Ill.	November 5, 1928
At New Orleans, La.	November 5, 1928
At San Francisco, Calif.	November 5, 1928

Candidates must be 23 years and not over 32 years of age. They must have been graduated in medicine at a reputable medical college, and have had one year's hospital experience or two years' professional practice.

Requests for information or permission to take this examination should be addressed to the Surgeon General, United States Public Health Service, Washington, D. C.

H. S. CUMMING, *Surgeon General.*

NOTICE OF MEETING

MIDDLESEX SOUTH DISTRICT MEDICAL SOCIETY

The Pondville State Hospital for Cancer has invited the members of the Middlesex South District to a Buffet Lunch and Clinic on Wednesday, July 18, 1928.

Lunch at 1 P. M. Clinic 2 to 4 by Dr. Daland and assistants.

Directions: The road to Providence runs by the hospital, which is 3½ miles beyond Walpole.

Dr. Daland would like an estimate of the number who will be present. Kindly notify him by post card.

SOCIETY MEETINGS

October 15-19 — Interstate Post Graduate Association. Complete notice on page 1025, issue of June 28.

December 3-7 — Radiological Society Convention. Detailed notice appears on page 712, issue of May 17.

DISTRICT MEDICAL SOCIETY

Middlesex South District Medical Society

July 18—Middlesex South District Medical Society. Complete notice appears above.

BOOK REVIEW

Surgical Clinics of North America. April.

This volume gives a rapid insight into some of the more modern surgical procedures as carried out by men of experience in their special line of work. Erdmann is always sound and gives good advice about hysterectomy in fibroids and cholecystectomy in gall bladder disease. Lilienthal gives a good discourse on the surgery of pulmonary tuberculosis, illustrating two methods of diminishing residual cavities after thoracotomy. Moorhead gives some new ideas in the treatment of arthritis surgically: physiotherapy, plaster block splints, fractures of the head of the radius and a unique motor-driven traction apparatus for immediate reduction of fractures of the leg; the latter practical only for the large clinic, but ingenious and possibly of some value. Beer's well illustrated article on Benign Enlargement of the Prostate is of general interest. Sheehan's photographs on plastic surgery of the face are, as usual in such cases, quite striking. His note on windshield wounds of the face deserves special comment inasmuch as it is such a common injury and so rarely well handled. Selinger on Chronic Appendicitis has done a good turn for the "ever-ready" surgeon by bringing to light some real cases of this questionable condition. It is the hope of the reviewer that he has not emphasized this too strongly. Strauss and Globus present an unusually clear article on a group of twelve brain tumors. Good chapters on Pulmonary Suppuration by Kramer, Urinary Obstruction by Pugh, Cancer of the Breast by Gottesman, Arthritis by Gratz, Wright and Mackenzie, Fractures of the Humerus by Colp and Findlay, and various surgical subjects by Dudley complete the volume; on the whole, good, instructive and worthy of reading.